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NEW MEXICO WILDERNESS STUDY REPORT

Volume 1—WSA Recommendations



September 1991

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NEW MEXICO
WILDERNESS STUDY REPORT

Department of the Interior
Bureau of Land Management

SEPT 1991

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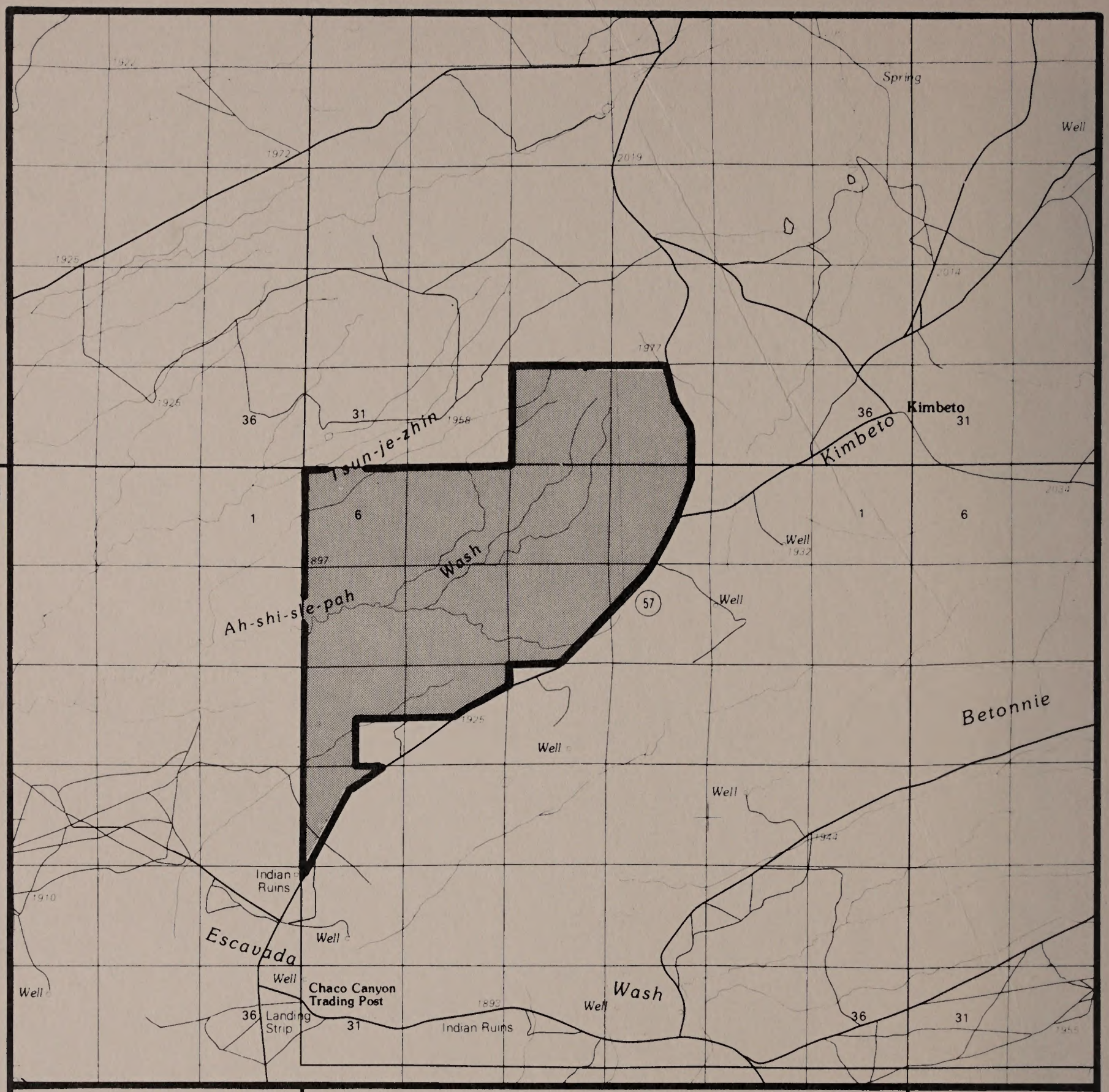
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AH-SHI-SLE-PAH
WILDERNESS STUDY AREA

MAP I



RECOMMENDED FOR WILDERNESS (None)

RECOMMENDED FOR NONWILDERNESS

LAND OUTSIDE WSA RECOMMENDED FOR WILD. (None)

SPLIT ESTATE (None)

STATE (None)

PRIVATE (None)

N

0 1 2

MILES

Ah-shi-sle-pah Proposal

NM-010-009

April 1990

AH-SHI-SLE-PAH
WILDERNESS STUDY AREA

THE STUDY AREA - 6,563 Acres

The Ah-shi-sle-pah Wilderness Study Area (WSA), NM-010-009, is located approximately 50 miles south of Farmington, New Mexico and 2 miles north of the Chaco Culture National Historical Park. The WSA contains 6,563 acres of Bureau of Land Management (BLM) land. (See Table 1 for land status and acreage summary of the study area.) The WSA is bordered on the south and east by a maintained road and transmission line and on the north and west by State and Navajo property boundaries.

Landforms in this region include mesas, retreating escarpments, arroyos, badland hills, and rolling plains. The major drainage found in the WSA is Ah-shi-sle-pah Wash. Most of the WSA consists of badlands (4,542 acres) and is devoid of vegetation. The Kirtland Shale and Fruitland Formations in these badland areas contain excellent preserved fossils such as petrified logs, dinosaurs, turtles, and crocodile teeth.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *Draft Bisti, De-na-zin, Ah-shi-sle-pah Proposed Wilderness Areas Environmental Impact Statement*. Following passage of the San Juan Basin Wilderness Protection Act of 1984 (which designated the Bisti and De-na-zin areas as wilderness but took no action on the Ah-shi-sle-pah WSA), the WSA was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. Three alternatives for the Ah-shi-sle-pah WSA were analyzed in the EIS: an all wilderness alternative, an amended boundary alternative, and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

0	Acres recommended wilderness
6,563	Acres recommended nonwilderness

The Ah-shi-sle-pah WSA is not recommended for wilderness designation (see Map 1). The recommendation is based on the known coal reserves, the existence of Preference Right Lease Applications (PRLAs) on 90 percent of the WSA's acreage, the anticipated likelihood of future mineral development, and the potential transfer of 3,094 acres in the WSA to the Navajo Tribe. These factors combine to make the Ah-shi-sle-pah WSA unmanageable as wilderness.

The All Wilderness Alternative is the environmentally preferable alternative as its implementation would result in the least change to the natural environment over the long-term. The recommendation, while not environmentally preferred, will be implemented in a manner which would use all practicable means to avoid or minimize environmental impacts. There are no surface disturbing activities presently proposed, however, mineral exploration and development are likely in the future. Any mining activity would be regulated to prevent unnecessary or undue degradation of the natural environment.

The principal mineral resource of the WSA lies in the Fruitland Formation Coal Reserves. Based on preliminary BLM studies, the southern portion of the WSA has surface coal reserves estimated at 187 million tons and the northeastern part of the WSA has underground coal reserves estimated at 76 million tons. The WSA contains parts of three coal PRLAs, and other PRLAs adjoin the WSA boundary.

The mineral survey conducted by the U.S. Geological Survey identified resources of 399.4 million tons of low-sulfur subbituminous coal in the WSA. The minable reserve was estimated by the U.S. Geological Survey at 240 million tons. The WSA was also found, through this study, to have a high mineral resource potential for oil and gas.

The principal management problem for this area involves the transfer of 3,094 acres to the Navajo Tribe in accordance with the provisions of the Navajo-Hopi relocation settlement. These lands would be transferred to the Navajo Tribe after the existing PRLAs are adjudicated. Should this selection be completed prior to Congressional action on the wilderness recommendation, this area could not be managed as wilderness. The land would be held in trust by the Secretary of the Interior for the Navajo Tribe and no longer under BLM jurisdiction. This would leave 3,469 acres under BLM administration. The remaining acreage would contain the same wilderness characteristics of naturalness, solitude, opportunities for primitive and unconfined recreation, and special features as the 6,563-acre WSA, just on a smaller scale. However, the small size and irregular boundary configuration would result in greater outside impacts on the wilderness area.

There is no question the Ah-shi-sle-pah WSA has outstanding wilderness values. This recommendation is not based on the quality of those wilderness values, but on the ability of BLM to effectively manage the area as wilderness. Given the information about the known coal reserves, the presence of

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	6,563
Split-Estate (BLM Surface Only)	0
Inholdings	0
Total	6,563
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	0
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings	0
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	6,563
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	6,563
Inholdings	0

the PRLAs, and the Navajo selection of 3,094 acres in the WSA, BLM does not feel it could reasonably manage the area as wilderness.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The imprints of man within the 6,563-acre Ah-shi-sle-pah WSA are minimal, consisting of 1 dumping area, 4 earthen dams (1 with a fence), 5 rain gauges, 1 drill site, 4 fencelines (8 miles total), 11 routes (4 miles total), 4 observation wells, and 1 stream flow gauge.

The Ah-shi-sle-pah WSA's intrusions are generally well-buffered by topography or vegetation. When viewed as a whole, the WSA appears to have been primarily affected by the forces of nature; the imprint of man's intrusions is substantially unnoticeable.

Solitude

The badland terrain in the WSA provides an outstanding opportunity for solitude. Sixty-nine percent of the 6,563-acre WSA consists of badland formations, with the remaining area covered by rolling grasslands dissected by intermittent washes. The solitude opportunities are concentrated in the center of the WSA where the badlands occur. The rolling grasslands do not offer much screening between the user and activities outside the WSA, or between users inside the WSA. The vegetation of the WSA does not provide significant opportunities for seclusion but, rather, emphasizes the feeling of expansive solitude.

Primitive and Unconfined Recreation

Opportunities for primitive and unconfined recreation within the Ah-shi-sle-pah WSA are outstanding. The expansiveness of the rolling hills and the intricacy of the dissected badlands provide the WSA with varied opportunities for dispersed recreation. The badlands offer the opportunity for hiking, camping, horseback riding, sightseeing, and photography. The WSA is used primarily for day hiking, with some overnight use. Sightseeing opportunities related to the inherent scenic, geologic, and paleontological values exist throughout the WSA.

Special Features

The WSA contains special scenic, geologic, scientific, and educational features. The scenic features of the WSA are primarily derived from the badlands topography and coloration, which are the result of geologic processes.

The outcrops of the Fruitland Formation and Kirtland Shale provide geologic and paleontological features with intrinsic educational values. Scientific values are also tied to these paleontological features. Nearly complete dinosaur skeletal remains have been found in the Ah-shi-sle-pah WSA and outstanding fields of petrified stumps occur as well.

The Ah-shi-sle-pah WSA also contains archeological sites that have intrinsic scientific and educational values, and sacred sites of value to the Navajo people.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The Ah-shi-sle-pah WSA is within the Colorado Plateau Province. The potential natural vegetation (PNV) is 6,563 acres of grama/galleta steppe. Wilderness designation of the Ah-shi-sle-pah WSA would add an example of this ecosystem to the National Wilderness Preservation System (NWPS). The ecosystem information is summarized in Table 2.

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Colorado Plateau Province				
Grama/Galleta Steppe	8	164,365	13	91,090
New Mexico				
Colorado Plateau Province				
Grama/Galleta Steppe	6	105,255	13	91,090

Assessing the Opportunities for Solitude or Primitive Recreation Within a Days Driving Time (5 Hours) of Major Population Centers

The WSA is within a 5-hour drive of Albuquerque and Santa Fe, New Mexico. Table 3 summarizes the number and acreages of designated areas and other BLM study areas within a 5-hour drive of these population centers.

Balancing the geographic distribution of wilderness areas

The Ah-shi-sle-pah WSA would slightly contribute to balancing the geographic distribution of areas within the NWPS. Existing wilderness in the vicinity include the BLM-administered Bisti and De-na-zin Wilderness Areas. The Ah-shi-sle-pah WSA is similar in character to the approximately 27,000 acres of wilderness in these two existing areas.

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	698,630
Santa Fe	21	1,422,038	23	389,644

Manageability

The Ah-shi-sle-pah WSA could not be managed to preserve the area's wilderness values. This determination was based on the presence of three PRLAs in an area known to possess approximately 263 million tons of coal based on BLM studies and the Navajo selection of 3,094 acres of BLM land within the WSA.

The 1982 Draft EIS recommended that the Ah-shi-sle-pah WSA not be designated as wilderness due to its considerable coal reserves (263 million tons). Should this area be designated as wilderness, 263 million tons of coal would not be mined. The PRLAs covering these considerable reserves would be adjudicated and Congress would have to establish provisions for the exchange of these rights to coal. Uranium and oil and gas development would probably not occur as these minerals have a low potential.

The principal management problem for this area involves the transfer of 3,094 acres to the Navajo Tribe in accordance with the provisions of the Navajo-Hopi relocation settlement. These lands would be transferred to the Navajo Tribe after the existing PRLAs are adjudicated. Should this selection be completed prior to Congressional action on the wilderness recommendation, this area could not be managed as wilderness. The land would be held in trust by the Secretary of the Interior for the Navajo Tribe and no longer under BLM jurisdiction. This would leave 3,469 acres under BLM administration. The remaining acreage would contain the same wilderness characteristics of naturalness, solitude, opportunities for primitive and unconfined recreation, and special features as the 6,563 acre WSA, just on a smaller scale. However, the small size and irregular boundary configuration would result in greater outside impacts on the wilderness area.

Energy and Mineral Resource Values

The principal mineral resource of the WSA lies in the Fruitland Formation Coal Reserves. Based on preliminary BLM studies, the southern portion of the WSA has surface coal reserves estimated at 187 million tons, and the northeastern part has underground coal reserves estimated at 76 million tons.

The U.S. Geological Survey conducted field studies and investigated various source of mineral information to assess the mineral potential of the Ah-shi-sle-pah WSA. These studies included examination of geologic, geochemical, and geophysical data. Published literature was reviewed, and lessee, mine operators, and government employees having knowledge of mineral occurrences and geology in and near the Ah-shi-sle-pah WSA were interviewed. The following is a summary of their findings as identified in their 1983 Open File Report.

Energy minerals that occur in or near the WSA are coal, petroleum, and possibly, uranium. Identified resources (includes demonstrated and inferred reserves) of low-sulfur subbituminous coal that can be mined by surface or underground methods occur in the Upper Cretaceous Fruitland Formation in this WSA. The identified resources of coal in the WSA are 399.4 million tons, most of which is minable by surface methods. The minable reserve base contains 240 million tons.

Cretaceous and older sedimentary rocks that produce large quantities of oil and gas in nearby parts of the San Juan Basin also underlie this study area. Drilling has not adequately tested these rocks in the study area, but production and shows of oil and gas from some wells and the projected stratigraphic distribution of producing sandstone lenses indicate that the area has a high resource potential for oil and gas. This reflects a change from the low potential identified by BLM Geologists in the EIS.

Because of the lack of exploratory drilling information on the possible uranium-bearing rocks, the WSA is classified as having an unknown mineral resource potential for uranium. Uranium occurrences may be present beneath the WSA where favorable host rocks are 5,000 feet or more below the surface.

A geochemical survey was conducted in order to evaluate the possibilities for other previously undiscovered minerals in the area of the WSA. The results of the geochemical survey indicate no significant enrichment in metals or other possibly important elements in or near the WSA.

Impacts on Resources

A comparative summary of impacts by alternative for the Ah-shi-sle-pah WSA is shown on Table 4. This information is taken from the Final EIS.

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (6,563 Acres Suitable)	No Wilderness (Proposed Action; 0 Acres Suitable)	Amended Boundary (3,469 Acres Suitable)
Impacts on Wilderness Values	The special scenic values and paleontological features of this badlands environment would be preserved. Habitat for ferruginous hawks would be preserved.	In the short-term, there would be no impacts on wilderness values. In the long-term, naturalness, solitude, and hiking/photography opportunities in this badlands environment would be lost on approximately 1,760 acres because of surface mining.	The special scenic and paleontological features within 50 percent of the WSA would be preserved. The small size and irregular boundary configuration would result in a less than outstanding opportunity for solitude.
Impacts on Coal Development	Coal reserves of 263 million tons would not be mined.	Surface coal reserves (187 million tons) and subsurface coal reserves (76 million tons) would be mined.	Coal reserves of 172 million tons would be mined over a 20-year period in the 3,094 acres not designated wilderness. The 91 million tons in the 3,469 acres designated wilderness would not be mined.
Impacts on Livestock Grazing Use Levels	There would be no impacts on current grazing levels approximating 126 AUMs. Permission would be required for vehicle access to improvements resulting in operator inconveniences.	Current grazing use levels of approximately 27 AUMs would continue. A 1/4 mile of existing route would be affected,and operators would be inconvenienced by surface mining. Up to 60 acres/year of land could be disturbed by surface mining and would not be available for the grazing of approximately 5 AUMs/year over a 20-year period.	There would be no impacts on current grazing use levels of approximately 27 AUMs. In the 3,094 acres not designated wilderness, up to 60 acres/year of land could be disturbed by surface mining and would not be available for the grazing of approximately 5 AUMs/year over a 20- year period.

Local Social and Economic Considerations

No local social or economic conditions were identified in the New Mexico Statewide Wilderness Study; therefore, no further discussion of this topic will occur in this document.

Summary of WSA-Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Ah-shi-sle-pah area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). Considerable interest was generated during the comment and review period, which also included comments on the subsequently designated Bisti Wilderness and De-na-zin Wilderness. The main reason cited for wilderness designation was the preservation of wilderness values and their destruction if mining were to proceed. Other concerns included the lack of coal demand at present, adequate protection of paleontological and cultural resources, the preservation of Ah-shi-sle-pah's grassland, as well as the impact of coal development on traditional Navajo lifestyle.

Opponents of wilderness designation discussed the PRLAs and undeveloped coal reserves, the Ah-shi-sle-pah WSA's similarity to the Bisti Wilderness and De-na-zin Wilderness, plus the economic boost to the area from coal development. Overall, they agreed with BLM's assessment of recommending the Ah-shi-sle-pah WSA as non-wilderness.

Wilderness Study Comments

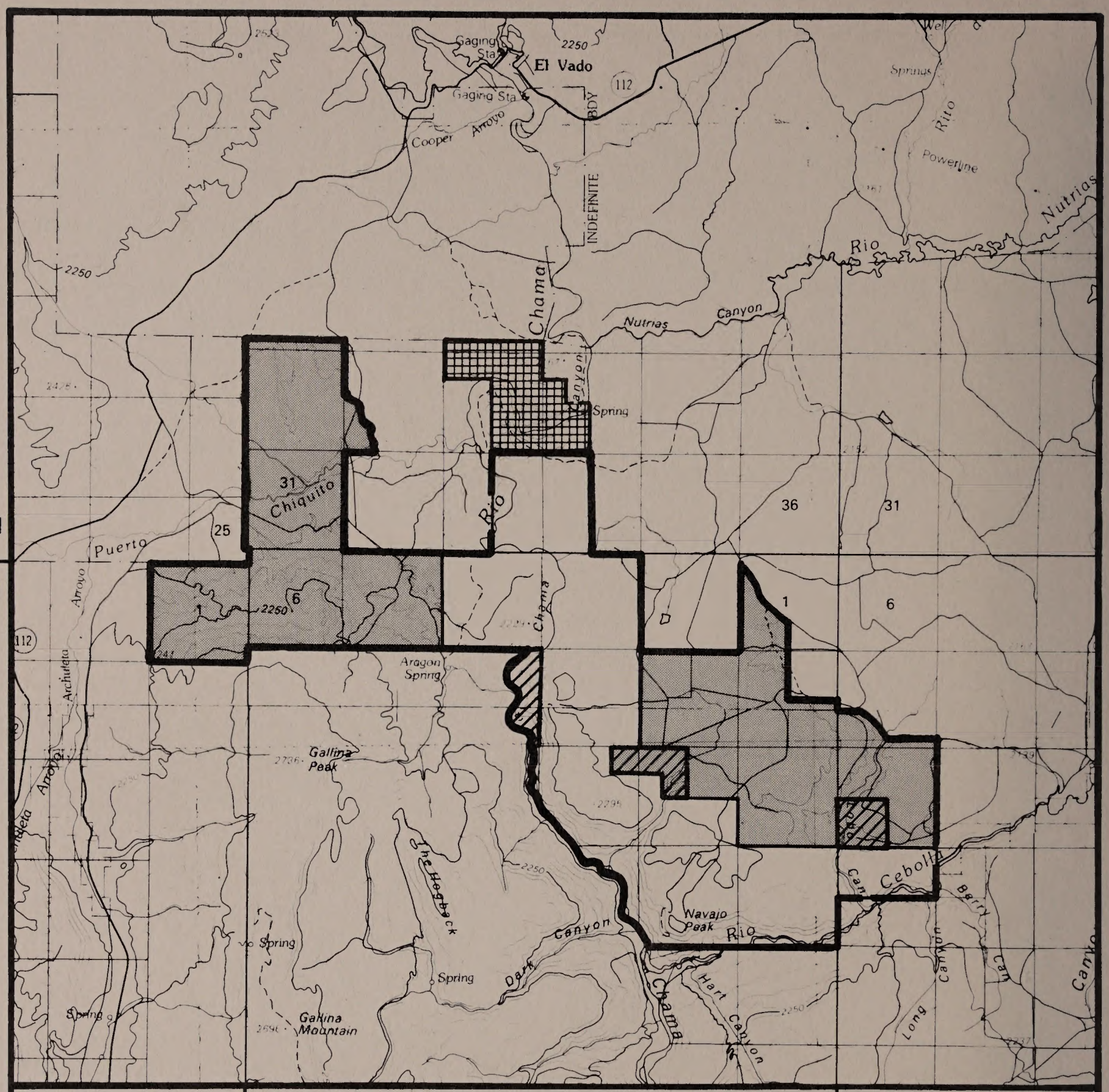
During the public comment period on the *Draft Bisti, De-na-zin, Ah-shi-sle-pah Proposed Wilderness Areas Environmental Impact Statement* in 1982, a total of 303 public inputs were received on Ah-shi-sle-pah WSA, with 290 (96 percent) in favor of wilderness designation. The reasons supporting the area included its wilderness values, recreational potential, and the availability of coal on nearby lands. One suggestion was made to explore the possibility of exchanging PRLA lease rights for bidding rights on Federal coal for applicants who have PRLAs which conflict with wilderness values.

As the Ah-shi-sle-pah WSA Wilderness Analysis Report was not included in the earlier phases of the New Mexico Statewide Wilderness Study, no comments were received which required a response or discussion during the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986). One commenter, however, specifically addressed the Ah-shi-sle-pah WSA, favoring wilderness designation. No opposition was received during the comment period.

In favoring wilderness protection, it was noted that such designation would protect the area's unique ecosystems and ecological diversity. It was also noted that wilderness designation would protect the area's paleontological and scientific values.

RIO CHAMA
WILDERNESS STUDY AREA

MAP I



RECOMMENDED FOR WILDERNESS

RECOMMENDED FOR NONWILDERNESS

LAND OUTSIDE WSA RECOMMENDED FOR WILD.

SPLIT ESTATE (None)

STATE (None)

PRIVATE

N

0 1 2

MILES

Rio Chama Proposal

NM-010-059

April 1990

RIO CHAMA WILDERNESS STUDY AREA

THE STUDY AREA - 11,985 Acres

The Rio Chama WSA, NM-010-059, is located in Rio Arriba County, approximately 3.5 miles south of El Vado, New Mexico (see Map 1). The WSA lies adjacent to the U.S. Forest Service (USFS) Chama River Canyon Wilderness and contains 11,985 acres of Bureau of Land Management (BLM) land. There are 461 acres of private inholdings contained in three parcels. (See Table 1 for land status and acreage summary of the study area.) The WSA is bounded on the south and west by USFS land and on the north and east by a combination of dirt roads and non-Federal lands.

The Rio Chama WSA is composed of a combination of gently rolling grass and sage plains bordered by dense ponderosa stands and the northern portions of Gallina Peak. The WSA is bisected on a north-south line by the Rio Chama, which meanders through a 900-foot deep canyon. In 1988, the Rio Chama was designated as a component of the National Wild and Scenic Rivers System. The WSA ranges in elevation from 6,600 feet to 7,500 feet.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement (EIS)*. The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. Three alternatives for the Rio Chama WSA were analyzed in the EIS: an all wilderness alternative, an amended boundary alternative, and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

5,918	Acres recommended wilderness
6,753	Acres recommendeda nonwilderness

The recommendation for the Rio Chama WSA is to designate 5,918 acres as wilderness, including 686 acres of BLM land contiguous to the WSA, and release the remaining 6,753 acres for uses other than wilderness (see Map 1). This recommendation is based on the exceptional natural qualities of the Rio Chama Canyon and the associated primitive recreation opportunities, such as floatboating, hiking, fishing, and camping. This area can also be effectively managed as wilderness. The remaining acreage outside the canyon are not being recommended for wilderness because of their marginal wilderness values. This portion of the WSA marginally meets the required naturalness criterion with its numerous vehicle ways and impacts from old timber sales and vegetation manipulations. The opportunities for solitude in this portion of the WSA are not exceptional. The recommendation for wilderness will further apply to any additional inholding acreage acquired through purchase or exchange with willing owners. Appendix 1 lists the inholdings and provides additional information on acquisition.

The All Wilderness Alternative is the environmentally preferable alternative as its implementation would result in the least change to the natural environment over the long-term. The recommendation, while not

the environmentally preferred, will be implemented in a manner which would utilizes all practical means to avoid or minimize environmental impacts. The majority of this WSA is recommended as wilderness, and there are no surface disturbing activities proposed for the area not recommended for wilderness designation.

The Rio Chama's most spectacular scenery and best opportunities for primitive recreation and solitude exist in the area recommended for wilderness. The area is characterized by the Rio Chama, its main canyon, and those woodlands extending out from the canyon rim. The deep rugged canyon and vegetation offer a tremendous experience of solitude for visitors who are down by the river or hiking the inner canyons below the rim. The Rio Chama is the only river in New Mexico where rafters, kayackers, and canoeists can float through a wilderness.

The recommended wilderness includes 686 acres of BLM land located outside the boundaries of the WSA. In April 1990, BLM acquired 320 acres of private land in the canyon along the northern boundary of the WSA. The acquired lands, as well as the adjoining 366 acres of BLM land, add valuable river corridor property to the proposed wilderness. These lands are primitive in character, with a historic homestead located on about 5 acres adjacent to the river. The historic homestead is the first stopping point for Rio Chama floatboaters. Wilderness management will be enhanced by including these lands in the recommended wilderness.

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	11,985
Split-Estate (BLM Surface Only)	0
Inholdings	461
Total	12,446
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	5,232
BLM (Outside WSA)	686
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	5,918
Inholdings	141
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	6,753
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	6,753
Inholdings	320

The area can be managed to preserve the quality of the wilderness characteristics. The topography and vegetation of the area and the absence of conflicting land uses or private rights would allow BLM to manage the area to ensure its preservation and use as wilderness in an unimpaired condition. The contiguous USFS Chama River Canyon Wilderness along the southern boundary and the recent designation of the Rio Chama as a component of the National Wild and Scenic River System enhances the BLM's ability to manage the area as wilderness.

Conflicts with other resource uses in the area recommended for wilderness designation are limited. Grazing use will be allowed to continue. Facility maintenance needs in the WSA are minimal. There are no proposed livestock developments which would be foregone.

The mineral survey conducted by U.S. Geological Survey (USGS) and U.S. Bureau of Mines revealed the Rio Chama WSA has low mineral resource potential for oil and gas, geothermal energy, uranium, and all metallic resources. The WSA also has inferred sub-economic sand, gravel, limestone, and sandstone resources.

In the area not recommended for wilderness designation, the BLM rated the wilderness qualities as marginal during the inventory. This area includes those portions of the WSA beyond the canyon rim and around the periphery of the WSA. These lands contain rangeland improvements, access routes, reseeded areas, and private inholdings with structures. The concentration of rangeland improvements, areas reseeded with non-native grasses, and 16 miles of vehicle trails reduces the naturalness in this area. Management of this area as wilderness would be more difficult than for the canyon area, requiring signing and patrol to enforce vehicle use limitations, and acquisition and reclamation of private inholdings to achieve wilderness management objectives.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The amount and degree of impacts affecting the naturalness of the area are distinctly divided between the Rio Chama Canyon and the open range above its rims.

The Rio Chama Canyon provides an outstanding natural setting for recreation activities in the WSA. The vistas in and directly above the canyon give one a true feeling of naturalness. Most intrusions are hidden by the canyon walls and are therefore not noticeable from the Rio Chama.

The river canyon is contrasted with the open range topography above. Impacts of human activities are more visible and apparent above the canyon rims. These impacts include windmills, water catchments, seedings, fence lines, vehicle ways, private homes and ranch operations, and utility lines. The private inholdings which have been developed are all located outside the Rio Chama Canyon.

Solitude

The opportunities for solitude in the Rio Chama WSA are outstanding. The topographic and vegetation screening of the Rio Chama Canyon offer a tremendous experience of solitude for visitors who are down by the river. A truly unique feeling of isolation is possible while either floating or hiking the inner canyons below the rims.

The opportunities for solitude are primarily due to limited access to the river. As a result, fewer encounters with humans are anticipated. Also, evidence of human activity found above the canyon are mitigated by topographic screening when the user is down by the river. A user can readily find seclusion within the river canyon boundaries.

The opportunities for solitude are somewhat diminished above the rim due to the accessibility by vehicles. Solitude may still be achieved by the user in secluded locations which are easily found above the canyon rims.

Primitive and Unconfined Recreation

The Rio Chama WSA offers a variety of outstanding primitive and unconfined recreation opportunities. The most significant recreational feature of the Rio Chama WSA is the river itself, where boating occurs several months out of the year (April-September). Other opportunities for primitive and unconfined recreational activities include backpacking, hiking, hunting, cross-country skiing, and camping. These activities do not require facilities or motorized equipment and are easily available in the WSA.

Special Features

The Rio Chama was designated in 1978 by the State of New Mexico as a "Scenic and Pastoral River" and by the Congress in 1988 as a "Wild and Scenic River." The Rio Chama is the single most important and valuable natural feature of the WSA. The Rio Chama Canyon contains one of only two floatable rivers in north-central New Mexico. This unique feature of the Rio Chama will rise in value as demand from commercial and private river runners increases throughout the West.

The views of geologic features, wildlife, and riparian vegetation from the river are valued features of the Rio Chama portion of the WSA. Inspirational to the late Georgia O'Keeffe, the colorful sandstone cliffs and canyon walls in this part of New Mexico were featured in several of her paintings.

The USFS Chama River Canyon Wilderness Area is located immediately south and west of the WSA. The State and Federal protective designations are indicative of the special nature of the Rio Chama Canyon.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The Rio Chama WSA is within the Rocky Mountain Forest Province. The potential natural vegetation (PNV) is 1,285 acres of ponderosa pine/Douglas fir forest, 1,000 acres of pinyon/juniper woodland, and 9,700 acres of Great Basin sagebrush. Wilderness designation of this WSA would add examples of these three ecosystems to the National Wilderness Preservation System (NWPS). The ecosystem information is summarized in Table 2.

Assessing the Opportunities for Solitude or Primitive Recreation Within a Day's Driving Time (5 Hours) of Major Population Centers

The WSA is within 5-hours driving time of Albuquerque and Santa Fe, New Mexico; and Colorado Springs, Colorado. Table 3 summarizes the number and acreages of designated areas and other BLM study areas within a 5-hour drive of population centers.

Balancing the geographic distribution of wilderness areas

The Rio Chama WSA would slightly contribute to balancing the geographic distribution of areas within the NWPS. Within a 50-mile radius from the Rio Chama WSA are five Wilderness Areas administered by the USFS and National Park Service. These areas total approximately 260,000 acres.

Manageability

The Rio Chama WSA could be managed as wilderness. Manageability of this WSA is influenced by private land within the study area, legal and physical access, livestock operations, uses of adjacent USFS land and recreational boating use on the Rio Chama.

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Rocky Mountain Forest Province				
Ponderosa Pine/Douglas Fir Forest	10	210,751	11	91,576
Pinyon/Juniper Woodland	2	41,451	19	166,636
Great Basin Sagebrush	1	5,918	2	9,405
New Mexico				
Rocky Mountain Forest Province				
Ponderosa Pine/Douglas Fir Forest	6	92,220	0	0
Pinyon/Juniper Woodland	1	30,270	1	352
Great Basin Sagebrush	0	0	1	6,698

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	693,208
Santa Fe	21	1,422,038	23	384,222
Colorado				
Colorado Springs	11	698,400	10	75,647

The WSA contains 461 acres of private inholdings in three parcels which must be provided reasonable access regardless of any protective designation. Two parcels are located outside of the canyon, and one parcel is located in the canyon along the Rio Chama. No significant manageability problems with the parcels outside the canyon are anticipated. The one parcel, however, may present management problems if not acquired, since it is in view of nearly all visitors to the area, and it will be difficult to ensure

that no trespass occurs. If the recommended area is designated wilderness, it would be desireable to acquire the one parcel of private land along the river. The owner of this parcel has expressed an interest in selling the land. Appendix 1 lists the inholdings and provides additional information on acquisition.

Regardless of whether the Rio Chama WSA becomes a wilderness area or not, access to the river by boaters must be considered. The major put-in point for boaters on the Rio Chama is the El Vado Fishing Ranch, located below El Vado Reservoir and owned by Mr. Carl Cooper. Presently, the BLM and the Santa Fe National Forest have an informal cooperative agreement for continued use of Mr. Cooper's land as a public launching site for floating the Rio Chama. The New Mexico Department of Natural Resources has secured alternative access for the public, immediately south of the Cooper's property.

The major demand for use by motor vehicles occurs when maintenance is necessary on rangeland improvements and during the hunting season when hunters traverse the eastern rim area for mule deer and elk. Vehicle use would be restricted if the WSA was designated as a wilderness area. To effectively control vehicular use on the top rim areas, additional fencing and signing would be required.

The WSA's southern boundary is contiguous with the USFS Chama River Canyon Wilderness Area. Management of the Rio Chama WSA as a wilderness would be enhanced by this situation since nonconforming uses that might otherwise diminish wilderness values along the WSA's southern boundary would not occur.

Energy and Mineral Resources Values

In 1985 and 1986, the USGS and U.S. Bureau of Mines conducted a mineral resource appraisal of the Rio Chama WSA. This wide-ranging study included an examination of geologic, geochemical, and geophysical data, as well as a review and assessment of local mining activity. The following is a summary of their findings. The Rio Chama WSA has low mineral resource po-tential for oil and gas, geothermal energy, uranium, and all metallic resources. The WSA also has inferred sub-economic sand, gravel, limestone, and sandstone resources.

Impacts on Resources

A comparative summary of impacts by alternative for the Rio Chama WSA is shown on Table 4. This information is taken from the Final EIS.

Local Social and Economic Considerations

No local social or economic conditions were identified in the New Mexico Statewide Wilderness Study; therefore, no further discussion of this topic will occur in this document.

Summary of WSA-Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Rio Chama area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). Public involvement for this WSA began with the Rio Grande Management Framework Plan (1979) and continued throughout the Taos Resource Area Roadless Study, the resulting WSA recommendation phase, and the Off-Road Vehicle Designation Plan which included the Rio Chama WSA. There were also two open houses held for public input regarding the Rio Chama WSA. One was held in Albuquerque, New Mexico on April 28, 1983 and the other in Taos, New Mexico on April 26, 1983.

Public involvement specifically concerning the Rio Chama WSA has been primarily in the form of written comments. The majority of written comments indicate that Rio Chama qualifies as a wilderness due to its scenic beauty and opportunities for solitude and primitive types of recreation such as hiking, camping, and boating.

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (11,985 Acres Suitable)	No Wilderness (0 Acres Suitable)	Amended Boundary (Proposed Action; 5,918 Acres Suitable)
Impacts on Wilderness Values	The Rio Chama's natural character, outstanding opportunities for solitude, and outstanding opportunities for trout fishing, camping, hiking, and visiting habitation sites dating back approximately 3,000 years would be maintained. The opportunity to floatboat in a wilderness setting would also be maintained.	Over the long-term, solitude in the Chama Canyon would be degraded by continued vehicle use on 6 miles of vehicle ways. Vehicle use is expected to remain at less than 100 vehicles per year. Naturalness and opportunities for solitude outside the canyon would diminish by 10 percent from continued vehicular use on the existing 16 miles of vehicle ways.	Wilderness protection would maintain those wilderness values in the canyon corridor where the highest quality wilderness values exist. These opportunities consist of solitude, fishing for trout, floatboating, camping, hiking and visiting habitation sites dating back approximately 3,000 years. Outside the canyon, naturalness would diminish by 10 percent without wilderness protection.
Impacts on Livestock Grazing Use Levels	No impacts on current levels of grazing use of 9/head/section/year. Allottees inconvenienced by requiring permits for vehicle access to 8 dirt tanks and replacement of allotment fences. Casual vehicle use for inspection and minor repairs would be precluded.	No impacts on current level of grazing use of 9/head/section/year. Vehicles could be used for access to 8 dirt tanks and fences for inspection and repairs, subject to ORV limitations and closures.	Essentially the same as the All Wilderness Alternative except that 4 of the 8 dirt tanks and 16 miles of the 22 miles of vehicular ways would be excluded from wilderness limitations.

Comments have also been made expressing the need to extend the wilderness boundaries from the upper reaches of the USFS Chama River Canyon Wilderness Area. Those who expressed support for wilderness designation also discussed the need to protect the Pediocactus paprycanthus (grama cactus), which has been unofficially reported in the WSA and is a potential candidate for the New Mexico Threatened and Endangered Plant Species List.

Wilderness Study Comments

During the public comment period on the *Albuquerque District Wilderness Draft Environmental Assessment* (1983), 23 inputs were received on the Rio Chama WSA. Of these inputs, 22 favored wilderness designation of the area. These inputs primarily noted the uniqueness of the Rio Chama Canyon and the fact that the proposed WSA is adjacent to the

existing USFS Chama River Canyon Wilderness Area.

Five inputs which favored designation questioned the amended boundary recommendation and were concerned that the amended boundary recommendation did not provide enough acreage to properly protect the river canyon.

Several different proposals were made to reduce the acreage from the original 11,985 acres yet still provide for a buffer area to the canyon.

One input was received by the Continental Divide Trail Society which indicated the Rio Chama Canyon is a potential corridor for the Continental Divide National Scenic Trail, and the wilderness designation for the Rio Chama could help to ensure protection of its scenic and recreational values.

Comments regarding manageability included recommendations for coordinating access needs with the USFS, Bureau of Reclamation, and New Mexico Department of Natural Resources.

The single input opposing the wilderness designation pointed out that the area is on the eastern flank of the San Juan Basin and oil production is present 3 miles west at the Puerto Chiquito Field.

The comments cited in these inputs reflect a concern held by most of the respondents that the area should be protected through wilderness designation. The other major concern was that the final amended boundary be sufficient to provide the protection and isolation afforded to the adjacent USFS Chama River Canyon Wilderness Area so that a consistent wilderness experience may be available throughout the Rio Chama corridor.

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985), BLM received 465 comments in the form of letters and testimony at public hearings. Approximately 340 commenters supported "Alternative W," a 1.3 million-acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition. "Alternative W" included the Rio Chama WSA and recommended wilderness designation for the entire WSA. Specific comments were directed to the Rio Chama WSA by 16 commenters, of which 15 supported wilderness designation for the Rio Chama. For this WSA, none of these comments required specific responses or revisions to the affected environment or analysis of environmental impacts.

During the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), specific comments were directed to the Rio Chama by 35 commenters, all favoring wilderness designation. These commenters noted that such designation would protect the area's unique ecosystems, biotic community, and cultural resources, while not adversely impacting other uses such as grazing. Also noted were the WSA's high scenic and recreational qualities. Approximately one-fourth of the respondents felt that a larger area should designated than what BLM is recommending for wilderness. Three commenters noted that designation of this area would complement the Forest Service's adjacent Chama River Canyon Wilderness Area.

The New Mexico BLM Wilderness Coalition expressed support for the BLM's proposed action for this WSA (Amended Boundary Alternative).

Appendix 1: Estimated Costs of Acquisition of Non-Federal Holdings Within the Rio Chama WSA[1]

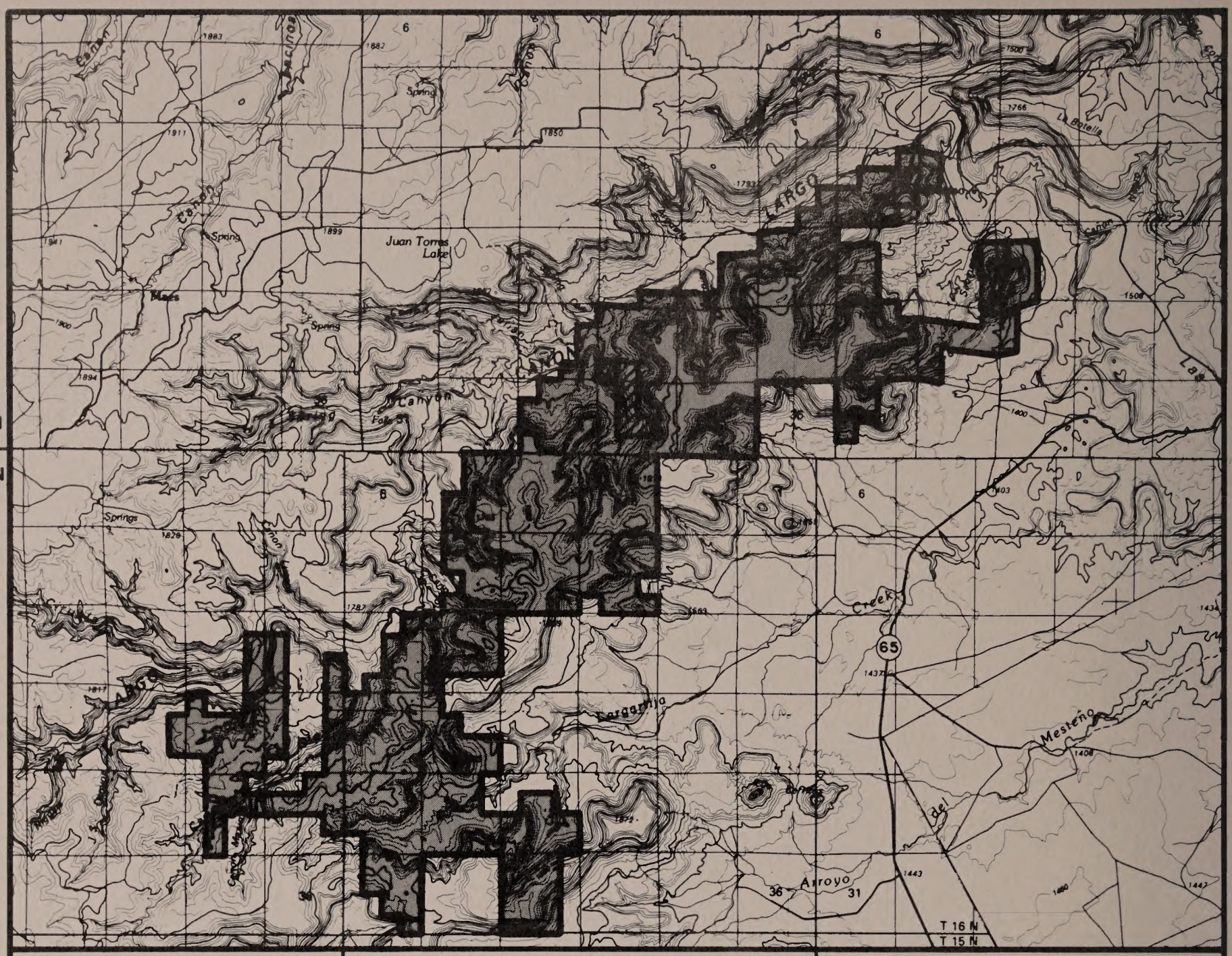
Legal Description (Prior to any Subdivision)	Total Acres	Number of Owners	Type of Ownership by Estate (BLM/ State/ Private) Surface Estate	Subsurface Estate	Proposed for Acquisition (Yes/No)	Preferred Method of Acquisition (Purchase/ Exchange/ Donation)	Estimated Costs of Acquisition[2] Land Costs	Processing Costs
Parcel #1, Sec. 9, T. 26N, R. 2E	141	1	Private	Private	Yes	Purchase	$ 45,000	$2,500

[1] The estimated costs listed in this appendix in no way represent a formal appraised value of the land or mineral estate, but are rough estimates based on sales or exchanges of lands or mineral estates with similar characteristics to those included in the WSA. The estimates are for purposes of establishing a range of potential costs to the government of acquiring non-Federal holdings and in no way represent an offer to purchase or exchange at the cost estimate included in this appendix.

[2] Processing costs are all miscellaneous expenses other than land costs. These would include work month costs, appraisals, title work, escrow costs, etc. Where direct purchase is proposed, an estimate of both the land costs and the processing costs is provided.

SABINOSO
WILDERNESS STUDY AREA

MAP 1



RECOMMENDED FOR WILDERNESS (None)

RECOMMENDED FOR NONWILDERNESS

LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS (None)

SPLIT ESTATE (None)

STATE (None)

PRIVATE

N

0 1 2

MILES

Sabinoso Proposal

NM-010-055

April 1990

SABINOSO
WILDERNESS STUDY AREA

THE STUDY AREA – 15,760 Acres

The Sabinoso WSA, NM-010-055, is located in San Miguel County, approximately 8 miles northeast of Trujillo, New Mexico, 20 miles northwest of Conchas Reservoir, and 1 mile due west of Sabinoso, New Mexico (see Map 1). The WSA contains approximately 15,760 acres of Bureau of Land Management (BLM) land and 320 acres of private inholdings. (See Table 1 for land status and acreage summary of the study area.) The WSA is bordered primarily by private and State lands.

The WSA is a series of high, narrow mesas surrounded by steep, rock-walled canyons. Elevations in the WSA range from 4,500 feet to 6,000 feet. The WSA's western boundary runs along the bottom of Canyon Largo, which enters the Canadian River at the town of Sabinoso. The Canyon Largo is an ephemeral stream. The rugged country primarily supports pinyon pine and juniper woodlands, with a perennial warm season grass savanna along the smoother mesa tops. The pinyon pine and juniper woodlands also include ponderosa pine. Along the canyon bottoms where the water table is high and streams periodically flow, riparian species are found, including cottonwood and willow.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. Two alternatives for the Sabinoso WSA were analyzed in the EIS: an all wilderness alternative and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

0	Acres recommended wilderness
15,760	Acres recommended nonwilderness

The Sabinoso WSA is not recommended for wilderness designation (see Map 1). This recommendation is based on the configuration of the WSA, the adjacent land status pattern, lack of legal access, and the projected high costs of wilderness management.

The All Wilderness Alternative is the environmentally preferred alternative as its implementation would result in the least change in the natural environment over the long-term. The recommendation, while not the environmentally preferred, will be implemented in a manner which would utilize all practical means to avoid or minimize environmental impacts, thereby ensuring no unnecessary or undue degradation will occur in the area. The WSA is within the Sabinoso Special Management Area (SMA) identified in the 1988 Final Taos Resource Management Plan. The primary management objective for the SMA will be to improve wildlife habitat and improve recreation and hunting opportunities. Planned actions include limiting vegetation manipulation actions, limiting suppression of naturally ignited fires, and acquiring legal access to the area.

The configuration of the WSA boundary in relationship to the topographic features and land status, leaves narrow necks of WSA lands protruding into canyons, over mesa tops, and along the sides of

canyons. This extremely irregular boundary is surrounded by State and private lands. It is nearly impossible to travel along topographic features, such as canyon bottoms and ridge or mesa tops, without crossing private or State lands. Some of the narrow necks of BLM land are almost considered inaccessible to hikers as a result of the sheer cliffs and rugged topography that would have to be traversed to avoid trespass. BLM would have to acquire substantial amounts of State and private land sections adjacent to the WSA to help create a manageable boundary.

There is no question the Sabinoso WSA has outstanding wilderness values. This recommendation is not based on the quality of those wilderness values, but on the ability of BLM to effectively manage the area. Given the present land status in the Sabinoso region, BLM does not feel it could reasonably manage the area as wilderness. Wilderness designation would have to be contingent upon acquiring substantial amounts of private land in the area. In addition, with the lack of projected activities, low mineral potential, and valid existing rights, it is expected that even without wilderness designation, the quality and level of values now found in the WSA would not significantly change.

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	15,760
Split-Estate (BLM Surface Only)	0
Inholdings	320
Total	16,080
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	0
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings	0
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	15,760
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	15,760
Inholdings	320

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The Sabinoso WSA consists of densely vegetated mesas and steep rugged canyons that create a feeling of overall naturalness in the area and provide effective screening. The lack of many human impacts within the WSA accentuates its natural appearance.

The majority of the WSA is inaccessible to motor vehicles, resulting in fewer human impacts than would normally occur within such a large expanse of land. The man-made structures and human activities that appear within and surrounding the WSA are screened by vegetation and topography. The evidence of man's intrusions has been limited due to the rugged country and remoteness of the area. These intrusions consist mainly of vehicle ways and rangeland improvements.

Solitude

Outstanding opportunities for solitude exist in this vast mesa and canyon country. The isolation of the WSA from any large population areas and the few vehicular access points into the WSA have naturally restricted the number of people who visit the area. The rugged canyons and areas of dense vegetation also enhance the feeling of being alone for any hiker or horseback rider.

Primitive and Unconfined Recreation

Recreational opportunities in the Sabinoso WSA include hiking, camping, horseback riding, and hunting. These opportunities are somewhat limited due to lack of legal public access and the land status in and surrounding the WSA. An increase in participation in these recreation opportunities would most likely occur if the BLM acquired legal public access to the Sabinoso WSA. The extent and enjoyment of pursuing these recreation opportunities will be limited to some users due to the harsh conditions such as the lack of water sources in the WSA. Some stock catchments retain water after heavy rains, and ephemeral drainages also flow following rains, but more often no dependable water sources for human consumption are available.

Special Features

The most obvious special features of the Sabinoso WSA are geologic and topographic. The location of a large, deep canyon area surrounded by the wide-open eastern New Mexico plains is unique to this region. The deep incisions cut into the flat topography by Canyon Olguin, Canyon Largo, and Lagartija Creek create a significant topographical and geological contrast in this open expanse of hundreds of square miles of rolling plains and mesa tops. The canyons expose geological displays of stratified rock and could serve as a teaching aid for earth history students.

Another feature of the Sabinoso WSA is its scenic vistas. From atop the mesas in the WSA are excellent viewing opportunities with broad vistas of canyons and plains for hikers and sightseers

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The Sabinoso WSA lies within the Colorado Plateau Province. The potential natural vegetation (PNV) consists of 6,700 acres of juniper/pinyon woodland and 9,060 acres of grama/galleta steppe. Wilderness designation of the Sabinoso WSA would add examples of these two ecosystems to the National Wilderness Preservation System (NWPS). This ecosystem information is summarized in Table 2.

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Colorado Plateau Province				
Juniper/Pinyon Woodland	11	1,401,745	84	2,137,305
Grama/Galleta Steppe	8	164,365	13	88,593
New Mexico				
Colorado Plateau Province				
Juniper/Pinyon Woodland	4	33,084	13	135,867
Grama/Galleta Steppe	6	105,255	13	88,593

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of Albuquerque and Santa Fe, New Mexico; Colorado Springs, Colorado; and Amarillo, Texas. Table 3 summarizes the number and acreages of designated areas and other BLM study areas within a 5-hour drive of these population centers.

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	689,433
Santa Fe	21	1,422,038	23	380,447
Colorado				
Colorado Springs	11	698,400	10	71,872
Texas				
Amarillo	10	523,806	0	0

Balancing the geographic distribution of wilderness areas

Designating the Sabinoso WSA as wilderness would contribute to balancing the geographic distribution of wilderness. The nearest designated wilderness is the USFS Pecos Wilderness, approximately 70 miles west of the Sabinoso WSA.

Manageability

Serious manageability problems are anticipated if the Sabinoso WSA is designated wilderness. The primary considerations for this determination are: inholdings, the configuration of the WSA boundary, and the boundary's relationship to topographic features.

The Sabinoso WSA contains one 320-acre parcel of private inholding. Access needs are not expected to result in significant management problems. The BLM would determine the least disturbing or intrusive route or method of access. The land status surrounding the Sabinoso WSA is a mosaic of private and State lands interspersed with small parcels of BLM land. The BLM has analyzed other potential boundary configurations, but none were found to alleviate all the management problems.

The BLM would have to pursue legal access for both BLM administrative purposes and the general public. The WSA boundary is very irregular; several "necks" of BLM land surrounded by State and private lands exist. It is nearly impossible to travel along topographic features, such as canyons or ridges, without crossing private or State lands. The land pattern does not conform with the topographic features. A cadastral survey of the area will also be necessary due to extensive problems with identification of land status and boundaries.

Energy and Mineral Resource Values

In 1985 and 1986, the U.S. Geological Survey (USGS) and the U.S. Bureau of Mines conducted studies to identify the mineral resources and assess the mineral resource potential of the Sabinoso WSA. The investigation included a review of previous geological studies, geological mapping from aerial photographs and field examinations, and field studies of mines, prospects, and mineralized areas in and near the WSA.

No identified mineral resources were found in the WSA. Uranium occurrences inside the study area are small and low grade, and do not constitute a uranium resource. There are no known leasable, locatable, or salable mineral resources in the WSA. Geological and geophysical studies indicate a moderate mineral potential for undiscovered uranium in the middle member of the Chinle Formation in the study area. The mineral potential is low for undiscovered resources of all metals other than uranium and for oil and gas in the WSA.

Impacts on Resources

A comparative summary of impacts by alternative for the Sabinoso WSA is shown on Table 4. This information is taken from the Final EIS.

Local Social and Economic Considerations

No local social or economic considerations were identified in the New Mexico Statewide Wilderness Study. Therefore, no further discussion of this topic will occur in this document.

Summary of WSA-Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Sabinoso area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). Two open houses were held to gather public input; the first was in Taos, New Mexico on April 26, 1983, and the second in Albuquerque, New Mexico on April 28, 1983.

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (15,760 Acres Suitable)	No Wilderness (Proposed Action; 0 Acres Suitable)
Impacts on Wilderness Values	The natural character of the forested mesas and canyons would be maintained. Opportunities for solitude, hiking, camping, and hunting would be maintained.	Vehicular access would be restricted due to off-road vehicle (ORV) limitations and closures, so potential degradation of naturalness, solitude, and recreation opportunities would be lessened to a maximum 10 percent. Activities related to livestock use such as vehicle and motorized equipment use for maintenance, replacement, and inspection would result in a 5-10 percent reduction in wilderness quality over the long-term.
Impacts on Livestock Grazing Use Levels	There would be no impacts on current levels of grazing of 10 head/section/year. Allottees inconvenienced by requiring permits for vehicle access to 16 dirt stock tanks and replacement of fences. Casual vehicle use for inspection and minor repairs would be precluded.	There would be no impacts on current levels of grazing use of 10 head/section/year. Vehicles could be used to access rangeland improvements and for inspection and repairs subject to ORV limitations and closures.

Wilderness Study Comments

During the public comment period on the *Albuquerque District Wilderness Draft Environmental Assessment* (1983), 26 inputs were received regarding the Sabinoso WSA. Of these, 19 inputs favored wilderness designation for the WSA. The comments noted the need for protection of this unique natural area, the significance of the area as a representative of the high plains upland ecotype, the excellent opportunities for solitude and recreation, and the spectacular scenery. The comments also discussed the possibility of the BLM acquiring inholdings and access. The State Land Office mentioned that wilderness status would not conflict with any land uses in the State sections.

Seven inputs opposing wilderness designation included several petitions containing a total of 91 signatures. Almost all the people signing the petitions were residents located near the Sabinoso WSA. Some comments identified the irregular shape of the WSA (which could lead to trespass of private property by recreationists), the requirement to provide reasonable access to inholdings, and the reluctance of private landowners to provide access to Federal land. These comments expressed concern that the lack of water and the rugged nature of the topography make the WSA a dangerous place for visitors. The fear that wilderness designation would place restrictions on livestock operators was also mentioned. Another fear expressed was that wilderness designation would attract more visitors,

thus reducing the WSA's privacy while increasing litter, trespass, and vandalism.

Some comments stated that the wilderness process was not well publicized, nor was enough information on the process available to the public.

Several comments were also received that opposed designation due to the potential value of the WSA for mineral development. The lack of mineral exploration was cited as a reason to recommend multiple use of the WSA rather than wilderness designation. Another resource conflict was perceived to exist between wilderness management and habitat management for exotic wildlife species (ibex and Barbary sheep).

The commenters mentioned that the cadastral survey completed in 1970 was inaccurate. The original corner-sections from the 1880s were located; they do not agree with the 1970 survey corner-sections. The area is recommended to be resurveyed to determine correct property boundaries.

The picture of the old homesteads shown in the draft Wilderness Analysis Report was identified by a commenter as being outside the WSA. The roads shown in Map F-3 were reported to be in extremely poor condition; they should be considered trails. These comments have been analyzed by the BLM, and corrections made to the text and maps.

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement*, BLM received 465 comments in the form of letters and testimony at public hearings. Approximately 340 commenters supported "Alternative W," a 1.3 million-acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition. Alternative W included the Sabinoso WSA and recommended wilderness designation for the entire WSA. Specific comments were directed to the Sabinoso WSA by 111 commenters, all of whom supported wilderness designation for Sabinoso. None of these comments required specific responses or revisions to the affected environment or analysis of environmental impacts for this WSA.

There was also a public meeting held in Las Vegas, New Mexico on February 11, 1986, at which wilderness designation of Sabinoso was discussed. There were eight commenters that were opposed to wilderness designation at this meeting.

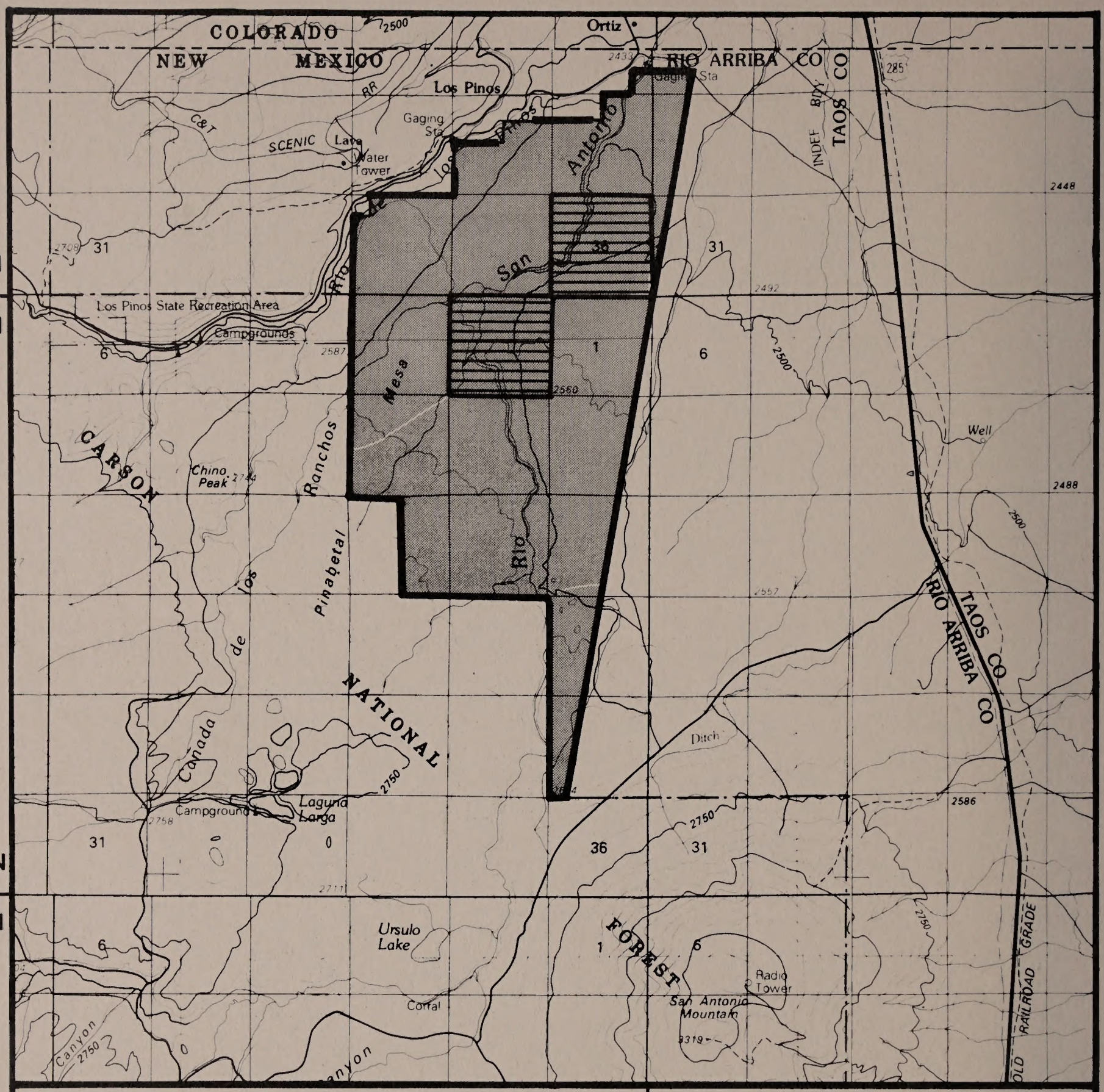
During the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), specific comments were directed to the Sabinoso WSA by 238 commenters, with 38 favoring wilderness designation and 200 opposing. Of the 200 opposing comments, 194 were form letters.

Those favoring wilderness designation felt the BLM's analysis did not adequately consider the wilderness values, and that manageability, the boundary configuration, and limited or no access were not justifiable reasons for not designation the area. Commenters also noted that designation will be a benefit by providing ecological diversity and protection of the resources from overuse and surface disturbing activities. It was also noted that the area contains high scenic and recreational values. Other reasons cited were that the value of wilderness outweighs other resources and uses, there is a need for more wilderness, and nondesignation will foreclose future consideration of the area for wilderness. In addition to these reasons, it was also noted that the boundaries should be enlarged.

Those opposing wilderness designation felt the area's values could be protected without designation, wilderness designation will adversely impact the range industry and local economy, and increase costs to the government. Of particular concern was the lack of public access and that access would have to be developed. Other reasons cited were that the area had low wilderness values, and that designation would lead to overuse, abuse of the natural resource, and trespass problems. It was also felt that there is enough wilderness.

SAN ANTONIO
WILDERNESS STUDY AREA

MAP I



RECOMMENDED FOR WILDERNESS (None)

RECOMMENDED FOR NONWILDERNESS

LAND OUTSIDE WSA RECOMMENDED FOR WILD. (None)

SPLIT ESTATE (None)

STATE

PRIVATE (None)

N

0 1 2

MILES

San Antonio Proposal

NM-010-035

April 1990

SAN ANTONIO
WILDERNESS STUDY AREA

THE STUDY AREA – 7,050 Acres

The San Antonio Wilderness Study Area (WSA), NM-010-035, is located in Rio Arriba County, New Mexico. It lies northwest of San Antonio Mountain, approximately 6 miles southwest of Antonito, Colorado, and 12 miles north of Tres Piedras, New Mexico. The WSA contains 7,050 acres of Bureau of Land Management (BLM) land and 1,280 acres of State inholdings. (See Table 1 for land status and acreage summary of the study area.) The WSA is bound on the north, west, and south by a combination of private and U.S. Forest Service boundaries. A right-of-way for a telephone line forms the eastern boundary of the WSA.

The WSA is composed of broad, gently rolling sagebrush and grass plains bisected north to south by the 200-foot-deep Rio San Antonio Canyon (also known as San Antonio Gorge). The WSA ranges in elevation from 7,900 feet to 8,835 feet. Vegetation varies from riparian habitat in the river canyons to dry sagebrush and pinyon pine and juniper woodlands in the flat open plain. The overall feeling is one of open expanses, contrasted by the deep incisions in the flat plains produced by the river canyon that abruptly drops out of sight.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide EIS was filed with the Environmental Protection Agency in February 1988. Two alternatives for the San Antonio WSA were analyzed in the EIS: an all wilderness alternative and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

0	Acres recommended wilderness
7,050	Acres recommended nonwilderness

The San Antonio WSA is not recommended for wilderness designation (see Map 1). While the area contains the values necessary for study, they are not considered to be of a quality to merit inclusion in the National Wilderness Preservation System (NWPS).

The All Wilderness Alternative is the environmentally preferable alternative as its implementation would result in the least change to the natural environment over the long-term. The recommendation, while not the environmentally preferred, will be implemented in a manner which would use all practicable means to avoid or minimize environmental impacts. The 1988 Taos Resource Management Plan identified the entire WSA as part of the San Antonio Special Management Area, and designated the San Antonio Gorge as an Area of Critical Environmental Concern (ACEC). Management would emphasize wildlife habitat and scenic values as the highest priority over other resource uses when considering proposed actions within the WSA. Management prescriptions include acquisition of the two State parcels within the WSA, implementation of wildlife habitat improvement projects, and limitations on vehicle use.

Opportunities for primitive and unconfined recreation activities in the WSA were determined by BLM to be less than outstanding. Primitive and unconfined recreation experiences are limited in the WSA

due to its small size; flat, sparsely vegetated terrain; and location near human activities. These limitations are mitigated in San Antonio Canyon by vegetation and topographic screening.

The flat, open terrain of much of the WSA allows for almost unlimited access by off-road vehicles from adjacent U.S. Forest Service land, where hunter pressure is very high. Limiting access by signing and patrol would be an expensive, long-term commitment of manpower to properly manage the area if it were designated wilderness.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The San Antonio WSA is natural in its general appearance. The Rio San Antonio Canyon is the single most important factor in the feeling of naturalness for the area. The views and impressions below the canyon rim are influenced by the natural screen-

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	7,050
Split-Estate (BLM Surface Only)	0
Inholdings	1,280
Total	8,330
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	0
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings	0
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	7,050
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	7,050
Inholdings	1,280

ing of the canyon walls and the riparian vegetation. This contrasts with the vast open expanse above the canyon rims where impacts of human activities are more visible. The human impacts in this area include rangeland improvements and vehicle routes, with a scoria mining operation and utility lines located just outside the WSA.

The 7,050-acre San Antonio WSA contains approximately 6 miles of vehicle routes used primarily for access to rangeland improvements requiring maintenance on an annual basis and access to the State inholdings. These routes also provide recreationists physical access to the Rio San Antonio Canyon.

A scoria mining operation is located 2 1/2 miles southeast of the WSA, and is particularly noticeable above the canyon rim when winds raise light red and black dust at the mine site.

The telephone line and right-of-way which established the eastern boundary of the WSA when the area was designated as a WSA in 1980 was relinquished in July 1985. Little evidence of the former telephone line remains.

The cumulative effects of these impacts is minimal when viewed from below the Rio San Antonio Canyon rim. Above the canyon rim, wide open space allows more human impacts in and adjacent to the WSA to be visible.

Solitude

Opportunities for solitude are greatest in the area of the WSA below the rim of Rio San Antonio Canyon. Access to the canyon is limited, so fewer encounters with humans are made. Above the canyon rim, more human activity is encountered due to the closeness of U.S. Highway 285, off-road vehicle (ORV) access to U.S. Forest Service recreational land, and ranch activity in the WSA. These intrusions on solitude are mitigated in the canyon by the vegetation and topographic screening which allows the user to find outstanding opportunities for solitude.

Primitive and Unconfined Recreation

Opportunities for primitive and unconfined recreation activities were determined by BLM to be less than outstanding.

Special Features

The ephemeral waters of the Rio San Antonio and the topographic contrast of the canyon cutting through the open plains make up the WSA's most outstanding special features. The viewing of wildlife that frequent the Rio San Antonio during the flow season (October through June) also makes the WSA important, although the actual wildlife habitat areas are concentrated on San Antonio Mountain on U.S. Forest Service land.

The scenic value of the riparian vegetation in the canyon, which contrasts with the dry open sagebrush plain located above and around the canyon rim, was considered by BLM to be a special feature.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The San Antonio WSA lies within the Rocky Mountain Forest Province. The potential natural vegetation (PNV) consists of 6,698 acres of Great Basin sagebrush and 352 acres of juniper/pinyon woodlands. Wilderness designation of the San Antonio WSA would add examples of these two ecosystems to the NWPS. This ecosystem information is summarized in Table 2.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of Albuquerque and Santa Fe, New Mexico; and Colorado Springs, Colorado. Table 3 summarizes the number and acreages of designated areas and other BLM

study areas within a 5-hour drive of these population centers.

Balancing the geographic distribution of wilderness areas

Designating the San Antonio WSA as wilderness would not contribute significantly to balancing the geographic distribution of wilderness. Within a 50-mile radius, there are six designated wilderness areas totalling approximately 460,000 acres.

Manageability

The San Antonio WSA could be managed to preserve the wilderness values which presently exist.

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Rocky Mountain Forest Province				
Great Basin Sagebrush	1	5,918	2	12,407
Juniper/Pinyon Woodlands	2	41,451	19	167,284
New Mexico				
Rocky Mountain Forest Province				
Great Basin Sagebrush	0	0	1	9,700
Juniper/Pinyon Woodlands	1	30,270	1	1,000

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	698,143
Santa Fe	21	1,126,112	23	389,157
Colorado				
Colorado Springs	11	698,400	10	80,582

Surface inholdings include 1,280 acres of State of New Mexico lands. The primary access routes to these state sections pass through the WSA. These inholdings also prevent the public land user from traveling through the entire length of the Rio San Antonio Canyon within the WSA without trespassing on the State land.

The WSA appears to have low potential for mineral development, so private or State mineral rights would not likely create incompatible uses in the WSA. There are presently no leases or mining claims.

Livestock management including required access for maintenance of the existing allotment boundary fences is not expected to create conflicts with wilderness management.

Boundary adjustments would not enhance wilderness manageability of the WSA. A major wilderness management issue would be the effective elimination of ORV use into the area. Poorly defined natural boundaries could result in ORV trespass as the result of existing use patterns of hunters and recreationists in the area. Public education and increased levels of patrol could be expected to reduce, but not eliminate, these access and use problems. Fencing would also help provide better boundary identification and help restrict vehicle access.

Energy and Mineral Resource Values

The San Antonio WSA is located between two major geologic structures, the Tusas Uplift and the Rio Grande Rift. Contracted studies indicate a lack of favorable source and reservoir rocks for the formation or retention of petroleum, leading BLM Geologists to assume a low economic potential for oil and gas development in the WSA. There are presently no leases.

Sporadic uranium exploration has occurred in the general vicinity of the WSA, but no discoveries have been made. The lack of favorable host rocks makes it unlikely that uranium would be found here. The BLM Geologists believe there is a possibility of a massive sulfide (e.g. copper, lead, zinc, molybdenum) occurrence in or near the WSA, but no exploration activity has taken place and no mining claims exist in the WSA. Because the San Antonio WSA is essentially all Tertiary flood basalt, BLM Geologists conclude there is low potential for the development of salable mineral deposits other than cinders (scoria).

Impacts on Resources

A comparative summary of impacts by alternative for the San Antonio WSA is shown on Table 4. This information is taken from the Final EIS.

Local Social and Economic Considerations

No local social or economic considerations were identified in the New Mexico Statewide Wilderness Study; therefore, no further discussion of this topic will occur in this document.

Summary of WSA-Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the San Antonio area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). Two open houses were held for public input regarding the San Antonio WSA and other WSAs in the Statewide study. One was held in Albuquerque, New Mexico on April 28, 1983, and the other in Taos, New Mexico on April 26, 1983.

Wilderness Study Comments

During the public comment period on the *Albuquerque District Wilderness Draft Environmental Assessment* (March 1983), 15 public inputs were received on the San Antonio WSA. Most of these inputs favored wilderness designation of the area. These comments were of a general nature and were

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (7,050 Acres Suitable)	No Wilderness (Proposed Action; 0 Acres Suitable)
Impacts on Wilderness Values	The natural character of the Rio San Antonio Canyon and adjacent uplands would be maintained. Opportunities for solitude would be maintained. The scenic values of the riparian habitat in the Rio San Antonio Canyon would be protected.	Due to the low resource development potential, naturalness and opportunities for solitude are expected to be maintained within the Rio San Antonio Canyon. The quality of these values would be diminished by 10-15 percent on the adjacent uplands as a result of continued use of motor vehicles.
Impacts on Livestock Grazing Use Levels	There would be no impact on the current level of grazing of 7 head/section/year. Allottees would be inconvenienced by restricting use of vehicles for inspection, repairs, and maintenance of existing rangeland improvements.	There would be no impact on current level of livestock grazing use. Vehicle access would be restricted to authorized users only.

based primarily on the remote location of the San Antonio River Canyon in an otherwise wide-open plain area.

Those who expressed support for wilderness designation discussed the need for a natural habitat for pronghorn antelope and other game. This need is increased because of the WSA's close proximity to the San Antonio Mountain Range and Wildlife Management Area (where use by motor vehicles is limited). Support for wilderness was also based on the need to preserve the WSA's characteristic western wheatgrass range and high rolling grasslands, which are considered under-represented in the National Wilderness Preservation System.

Four inputs opposed designation. Those opposed to the potential designation of the San Antonio WSA as wilderness expressed concern for BLM land becoming unavailable to ORV users, hunters, and mineral development, and for increasing the restrictions on livestock grazing within a designated wilderness area.

It was also expressed that the WSA does not meet "wilderness specifications", and that protection could be afforded by monitoring ORV use and designation as an Area of Critical Environmental Concern.

These comments presented no new perspectives or information regarding the wilderness characteristics of the WSA that would cause a change in the BLM's evaluation and proposal for non-wilderness status of the San Antonio WSA.

During the public comment period on the *New Mexico Statewide Wilderness: Draft Environment Impact Statement* (1985) During the public comment period, BLM received 465 comments in the form of letters and testimony at public hearings. Approximately 340 commenters supported "Alternative W," a 1.3 million-acre wilderness proposal

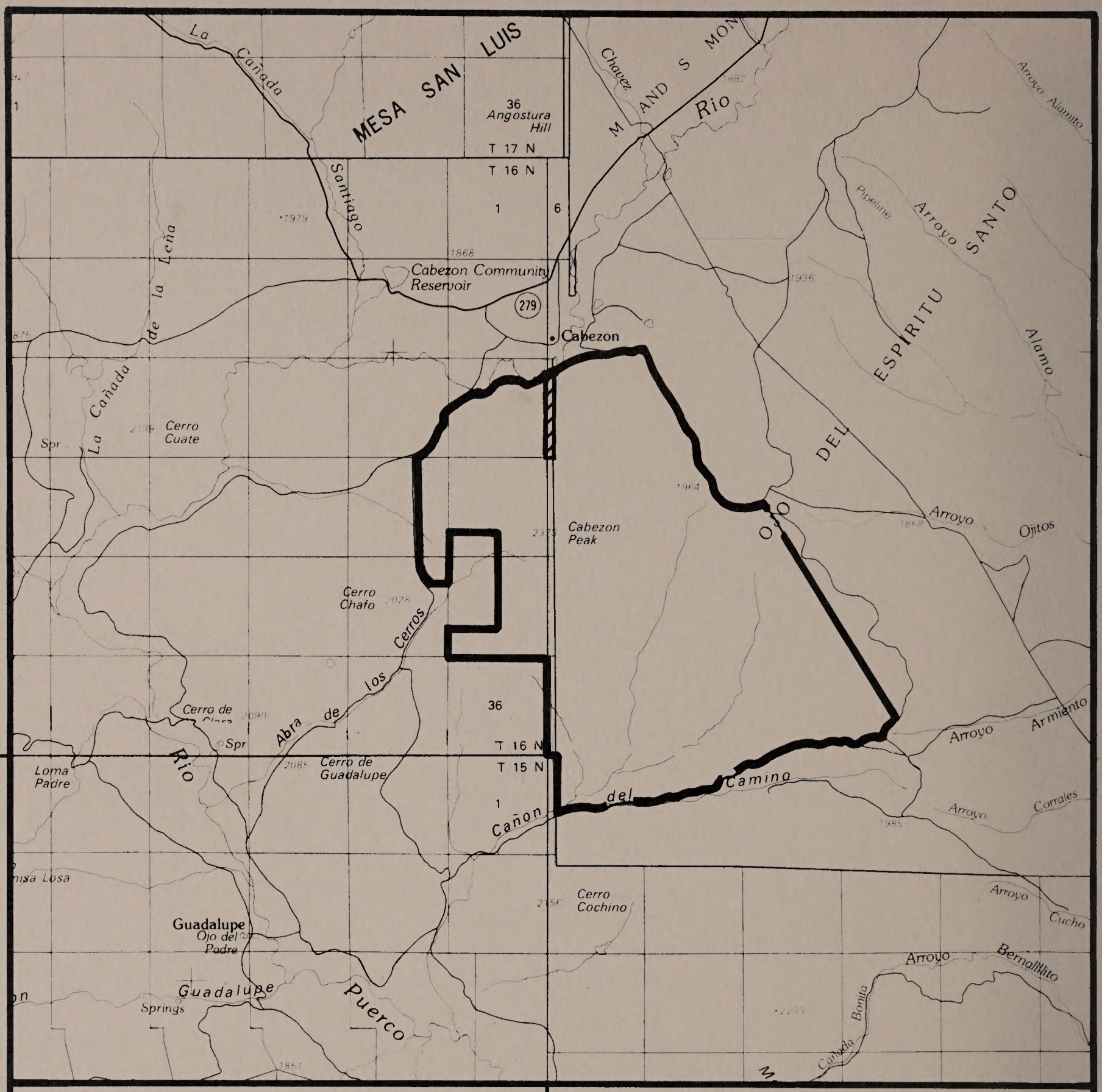
advocated by the New Mexico Wilderness Coalition. Alternative W included the San Antonio WSA and recommended wilderness designation for the entire WSA. Specific comments were directed to the San Antonio WSA by 15 commenters, of which 15 supported wilderness designation for San Antonio. For this WSA, none of these comments required specific responses or revisions to the affected environment or analysis of environmental impacts.

During the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), specific comments were directed to the San Antonio WSA by 38 commenters; all favoring wilderness designation.

Commenters noted that such designation would protect the area's wildlife habitat, cultural resources, ecosystems and biotic communities. Commenters also noted the area met the wilderness criteria and had high scenic and recreational values. It was felt that wilderness designation would protect resources from overuse and surface disturbance, while not adversely impacting other uses of the area. Of particular concern was that the value of wilderness and terrain were not adequately considered. Other concerns expressed were that the value of wilderness outweighs other resources and uses, that more wilderness is needed, and that nondesignation will foreclose future consideration of this area for wilderness. In addition, commenters felt the boundary should be expanded.

CABEZON
WILDERNESS STUDY AREA

MAP I



T16N

T15N

R3W | R2W

RECOMMENDED FOR WILDERNESS

RECOMMENDED FOR NONWILDERNESS (None)

LAND OUTSIDE WSA RECOMMENDED FOR WILD. (None)

SPLIT ESTATE (None)

STATE (None)

PRIVATE

N

0 1 2

MILES

Cabezon Proposal

NM-010-022

April 1990

CABEZON
WILDERNESS STUDY AREA

THE STUDY AREA — 8,159 Acres

The Cabezon Wilderness Study Area (WSA), NM-010-022, is located approximately 15 miles due west of San Ysidro, New Mexico. The WSA contains 8,159 acres of Bureau of Land Management (BLM) land and approximately 26 acres of private inholdings. (See Table 1 for land status and acreage summary of the study area.) The major portion of the WSA consists of land, formerly part of the Ojo del Espiritu Santo Land Grant, acquired by the Federal government under the Bankhead-Jones Act of 1937. The WSA is bordered on the north and south by maintained roads, on the west by property boundaries and a maintained road, and on the east by a combination of a powerline right-of-way and a maintained road (see Map 1).

The Cabezon WSA lies within the Navajo Section of the Colorado Plateau Province. The climate is semi-arid and the landforms strikingly reflect the erosive processes. Three principal landforms occur within the Cabezon WSA: the eroded volcanic neck of Cabezon Peak; the talus-covered slopes at the base of the neck; and the incised mesa topography characterizing the remainder of the WSA. The Navajo Section consists of sandstone beds with lesser amounts of shale that have been subjected to great erosion. In addition to these landforms, the Navajo Section is characterized by numerous occurrences of volcanic necks, buttes, and mesas. Cabezon Peak, rising to an elevation of 7,785 feet, is one of the most spectacular examples of these volcanic necks.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. Two alternatives for the Cabezon WSA were analyzed in the EIS: an all wilderness alternative and a no wilderness alternative.

8,159	Acres recommended wilderness
0	Acres recommended nonwilderness

RECOMMENDATION AND RATIONALE

The recommendation for the Cabezon WSA is to designate the entire area as wilderness (see Map 1). This recommendation is based on the WSA's high-quality wilderness values; the WSA's close proximity to Albuquerque, New Mexico's largest city; the WSA's cultural and geologic special features; and the lack of resource conflicts. This is also considered to be the environmentally preferable alternative as it will result in the least change to the natural environment over the long-term. This recommendation for wilderness will further apply to any additional inholding or split-estate acreage acquired through purchase or exchange with willing owners. Appendix 1 lists all inholdings and provides additional information on methods and costs of acquisition.

Similar in form to Devil's Tower in Wyoming and related in origin to the volcanic neck at Shiprock, New Mexico, Cabezon Peak is truly an impressive feature. Rising more than 2,000 feet above the surrounding Rio Puerco Valley, Cabezon Peak has long been recognized as a landmark in the region. In addition to the impressive volcanic neck, the WSA consists of pinyon pine and juniper foothills and rolling grass covered plains. The scenic values of this area and the close proximity to the population

center of Albuquerque contribute to the area's outstanding recreation opportunities. Popular activities include day hiking, camping, and climbing the rocky volcanic neck. The rugged nature of the volcanic neck and surrounding foothills also provide visitors with an outstanding opportunity to experience solitude.

The WSA provides scientists with an excellent opportunity to study the internal "plumbing" of a volcano. The volcanic neck has provided geologists with many clues regarding the geologic event that culminated with the spread of the lava flows of Cebollita Mesa. Many of the volcanic centers that contributed lava to the flows are still buried beneath the basalt cap, but Cabezon Peak is one center now exposed for scientific study and inspection.

Cabezon Peak and the bluffs southwest of it are particularly attractive to birds. The most commonly sighted birds are golden eagles, red-tailed hawks, sparrow hawks, horned larks, pinyon jays, ravens, western meadowlarks, and Oregon juncos.

The prehistoric significance of this landmark is evidenced by a Chacoan signal/shrine site atop the Peak. The site and vicinity indicate the Peak served as a station in the complex prehistoric Chacoan signaling system. This signaling system, apparently associated with the prehistoric Chacoan road sys-

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	8,159
Split-Estate (BLM Surface Only)	0
Inholdings	26
Total	8,185
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	8,159
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	8,159
Inholdings	26
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	0
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	0
Inholdings	0

tem, ties together central Chaco Canyon with over 80 known related outlier communities dispersed over 30,000 square miles. Due to Cabezon Peak's height, Chacra Mesa, Red Mountain, Mount Taylor, Hosta Butte, the peaks around Cerrillos, and several other known sites important in the Chacoan system are visible.

The Cabezon WSA can be effectively managed as wilderness because of its rugged nature, lack of private inholdings, lack of rights-of-way, and lack of encumbrance by valid existing rights. The wilderness boundary is identified by maintained roads on the north and south, by property boundaries and a maintained road on the west, and by a powerline right-of-way and a maintained road on the east.

The conflicts with other resource uses in this WSA are limited. Grazing use will be allowed to continue. Facility maintenance requirements in the WSA are minimal. There are no currently proposed livestock developments that would be foregone. The mineral survey conducted by the U.S. Geological Survey and U.S. Bureau of Mines revealed that there are no identified mineral resources in the WSA and the mineral potential for uranium, metallic minerals, sand and gravel, and energy resources is low.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The BLM has found that the imprints of man within the Cabezon WSA are substantially unnoticeable. The Cabezon WSA contains a fenceline network constructed of a mixture of wooden and metal posts. Six vehicular ways (2 3/4 miles) are used primarily for access to rangeland improvements. These improvements consist of six earthen dams visually buffered by rolling topography. They are generally small (holding less than 10 acre-feet of water). Many are heavily silted in, although they still adequately hold water. Most were constructed in the 1950s and 1960s and are in need of maintenance. When the reservoirs are dry during portions of the year, they revegetate and readily blend in with the surrounding areas. Because of the unyielding nature of the Peak itself, few man-made imprints have occurred, leaving the WSA in an exceptionally natural state.

Solitude

The unusual geology and rugged natural landscape provides visitors with an outstanding opportunity to experience solitude. The peak provides an excellent internal topographic buffer, allowing utilization by several groups.

Primitive and Unconfined Recreation

The WSA offers opportunities for sightseeing and photography related to scenic, geologic, and cultural values, as well as being a very popular site for climbing. The climb to the top is considered appropriate for both beginning and intermediate climbers, with an expansive view of the Rio Puerco Valley rewarding the effort. Opportunities for primitive and unconfined recreation are considered outstanding.

Special Features

Cabezon Peak, a volcanic plug, is similar in form to Devil's Tower in Wyoming and related in origin to the volcanic neck at Shiprock, New Mexico. Although scores of volcanic necks are found throughout the high plateau country of Arizona, New Mexico, and Utah, Cabezon Peak is, by its size and form, outstanding among them.

Cabezon Peak provides an excellent scientific opportunity to study the internal "plumbing" of a volcano. The volcanic neck has provided geologists with many clues regarding the geologic event that culminated with the spread of the lava flows of Cebollita Mesa. Many of the volcanic centers that contributed lava to the flows are still buried beneath

the basalt cap, but Cabezon Peak is one center now exposed for scientific study and inspection.

Populations of two rare cactus species have been located in the Cabezon WSA: Mammillaria wrightii (Wright's pincushion cactus) and Toumeya papyracantha (grama grass cactus). In addition, Astragalus knightii (Knight's milkvetch) is found in the WSA. All three are on the State list of endangered species.

Significant prehistoric and historic special features are associated with the cultural resources of Cabezon Peak and its immediate surroundings, including a Chacoan signal/shrine site atop the Peak and a historic Pueblo shrine.

Two special wildlife habitat features are formed by Cabezon Peak and the surrounding bluffs; these are among several geologic formations in the area valuable as habitat for non-game species, including birds of prey. Golden eagles, red-tailed hawks, sparrow hawks, prairie falcons, and great horned owls have been sighted nesting in the Cabezon WSA.

The visual resources and geology of Cabezon Peak highlight its significance as an important historic and contemporary visual landmark.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The Cabezon WSA lies within the Colorado Plateau Province. The potential natural vegetation (PNV) consists of 2,631 acres of grama/galleta steppe and 5,528 acres of Juniper/Pinyon woodland. Wilderness designation of the Cabezon WSA would add examples of these two ecosystems to the National Wilderness Preservation System (NWPS). The ecosystem information is summarized in Table 2.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of Albuquerque and Santa Fe, New Mexico. Table 3 sum-

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Colorado Plateau Province				
Grama/Galleta Steppe	8	164,365	13	95,022
Juniper/Pinyon Woodland	11	1,401,745	84	2,138,477
New Mexico				
Colorado Plateau Province				
Grama/Galleta Steppe	6	105,255	13	95,022
Juniper/Pinyon Woodland	4	33,084	13	137,039

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	697,034
Santa Fe	21	1,422,038	23	388,048

marizes the number and acreage of designated areas and other BLM study areas within a 5-hour drive of these population centers.

Balancing the geographic distribution of wilderness areas

Designating the Cabezon WSA as wilderness would contribute to balancing the geographic distion of wilderness. In the nearby region, there are four designated wilderness areas totalling approximately 191,000 acres. The Bisti, De-na-zin, Cebolla, and West Malpais Wilderness Areas are the only designated areas in the New Mexico portion of the Colorado Plateau Province.

Manageability

The Cabezon WSA can be effectively managed as wilderness because of its rugged nature, lack of private inholdings, lack of rights-of-way, and lack of encumbrance by valid existing rights. There are no oil and gas leases or mining claims.

The State of New Mexico holds 1,280 acres contiguous to the western boundary of the WSA (see Map 1). Although not essential to effective management of the Cabezon WSA as wilderness, acquisition of this acreage by purchase or exchange would enhance the overall land pattern and improve the manageability of the WSA. The maintained dirt road would become the boundary, rather than property boundaries which are difficult to identify on the ground. The State of New Mexico has indicated interest in an exchange of these lands. A slender 20-acre parcel of private land protrudes into the northern boundary of the Cabezon WSA (see Map 1). Acquisition of this parcel would simplify the overall management of the Cabezon WSA.

Energy and Mineral Resource Values

In 1984 and 1985, the U.S. Geological Survey and the U.S. Bureau of Mines conducted investigations to assess the mineral resource potential and appraise the identified mineral resources of the Cabezon WSA. These investigations revealed that there are no identified mineral resources in the WSA and the mineral potential for uranium, metallic minerals, sand and gravel, and energy resources is low.

Impacts on Resources

A comparative summary of impacts by alternative for the Cabezon WSA is shown on Table 4. The information is taken from the Final EIS, however, the 1984 and 1985 U.S. Geological Survey and U.S. Bureau of Mines mineral appraisal lowered the area's oil and gas potential from moderate to low. These later data are reflected in Table 4.

Local Social and Economic Considerations

No local social or economic considerations were identified in the New Mexico Statewide Wilderness

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (Proposed Action; 8,159 Acres Suitable)	No Wilderness (0 Acres Suitable)
Impacts on Wilderness Values	The natural character of this volcanic plug would be maintained. Opportunities for solitude and climbing Cabezon Peak would also be maintained. The current undisturbed condition of the prehistoric shrine atop Cabezon Peak, as well as 3 rare plant species found in the WSA would be protected. Habitat supporting golden eagle, red-tailed hawk, sparrow hawk, bobcat, gray fox, mule deer, and pronghorn antelope would be maintained.	No impact on wilderness values in the short-term. In the long-term, activity related to mineral exploration and development would reduce naturalness and opportunities for solitude by 10-20 percent.
Impacts of Oil and Gas Exploration and Development	Exploration of the 8,159 acres with a low potential for oil and gas would be foregone. Development is not anticipated.	No impacts.
Impacts on Livestock Grazing Use Levels	Current grazing use levels of approximately 8 head/section/year would continue. Permits would be required for vehicle access to 6 earthen reservoirs and 12 miles of fence. Casual vehicle use on 2 3/4 miles of ways for inspections and minor repairs would be precluded.	No impacts on livestock grazing use levels.
Impacts on Recreational Off-Road Vehicle (ORV) Use	The existing 2 3/4 miles of vehicle ways would be closed to backcountry exploration, vehicular camping, and some hunting using 2-wheel, 3-wheel, and 4-wheel vehicles.	No impacts on recreational ORV use in the short- or long-term.

Study; therefore, no further discussion of this topic will occur in this document.

Summary of WSA-Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Cabezon area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). Considerable interest in the management status of the Cabezon WSA has been expressed by the public. The WSA's close proximity to Albuquerque and Santa Fe and the resultant ease of access for such a large percentage of New Mexico's population has been pointed out. The Cabezon WSA's wide variety of supplemental values, natural characteristics, and opportunities for solitude and primitive and unconfined recreation have also been noted.

Opponents of wilderness designation for the Cabezon WSA have discussed the effect of excluding the WSA from possible mineral exploration and development, the presence of human impacts, and possible limitations on ranch operations.

Wilderness Study Comments

During the public comment period on the *Albuquerque District Wilderness Draft Environment Assessment* (1983), 34 public inputs were received on the Cabezon WSA. Five inputs expressed opposition to wilderness designation. Several comments cited conflicts with development of uranium, copper, gold, and oil and gas. It was also suggested that the Cabezon WSA's special values, including the recreation opportunities, could be better managed without wilderness designation.

Twenty-nine inputs favored wilderness designation. In addition to the Cabezon WSA's outstanding wilderness characteristics of solitude and primitive recreation, it is a favorite hiking area. The peak also represents a "good deal of history," being a significant landmark. One input stated that preserving the Cabezon WSA as a wilderness area would ensure the survival of representative scenery of the Rio Puerco Basin.

Additional comments expressed surprise that such a "renowned landmark" was not already designated. Others suggested acquisition of the 20-acre sliver of private land protruding into the north border of the Cabezon WSA. Other commenters felt the document did not express the full oil and gas potential of the area, but submitted no further information to change the initial assessment. Several inputs felt that the erosion problem could be corrected without major, intensive action, and therefore no acreage should be dropped from the Cabezon WSA's initial boundary.

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985), BLM received 465 comments in the form of letters and testimony at public hearings. Support came from 340 commenters for "Alternative W," a 1.3 million-acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition. Alternative W included the Cabezon WSA and recommended wilderness designation for the WSA. Specific comments were directed to the Cabezon WSA by 19 commenters, of which 18 supported wilderness designation for the Cabezon WSA. One commenter expressed opposition to wilderness designation. None of these comments required specific responses or revisions to the affected environment or analysis of environmental impacts.

During the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), specific comments were directed to the Cabezon WSA by 32 commenters. Of this total, 31 favored wilderness designation and one opposed it.

Those favoring wilderness designation commented on the need for more wilderness, that the value of

wilderness outweighs other resources and uses, and that nondesignation would foreclose any future consideration for wilderness. Commenters also noted that the area contained high scenic and recreational values. Other reasons cited were that wilderness designation would protect cultural values as well as the area's unique ecosystems and biotic communities. It was also noted that designation would not adversely impact other resources but would protect the area from overuse from such activities as off-road vehicle use.

Of particular concern to the commenter opposing wilderness was the adverse impact that designation would have on the mineral industry.

Appendix 1: Estimated Costs of Acquisition of Non-Federal Holdings Within the Cabezon WSA[1]

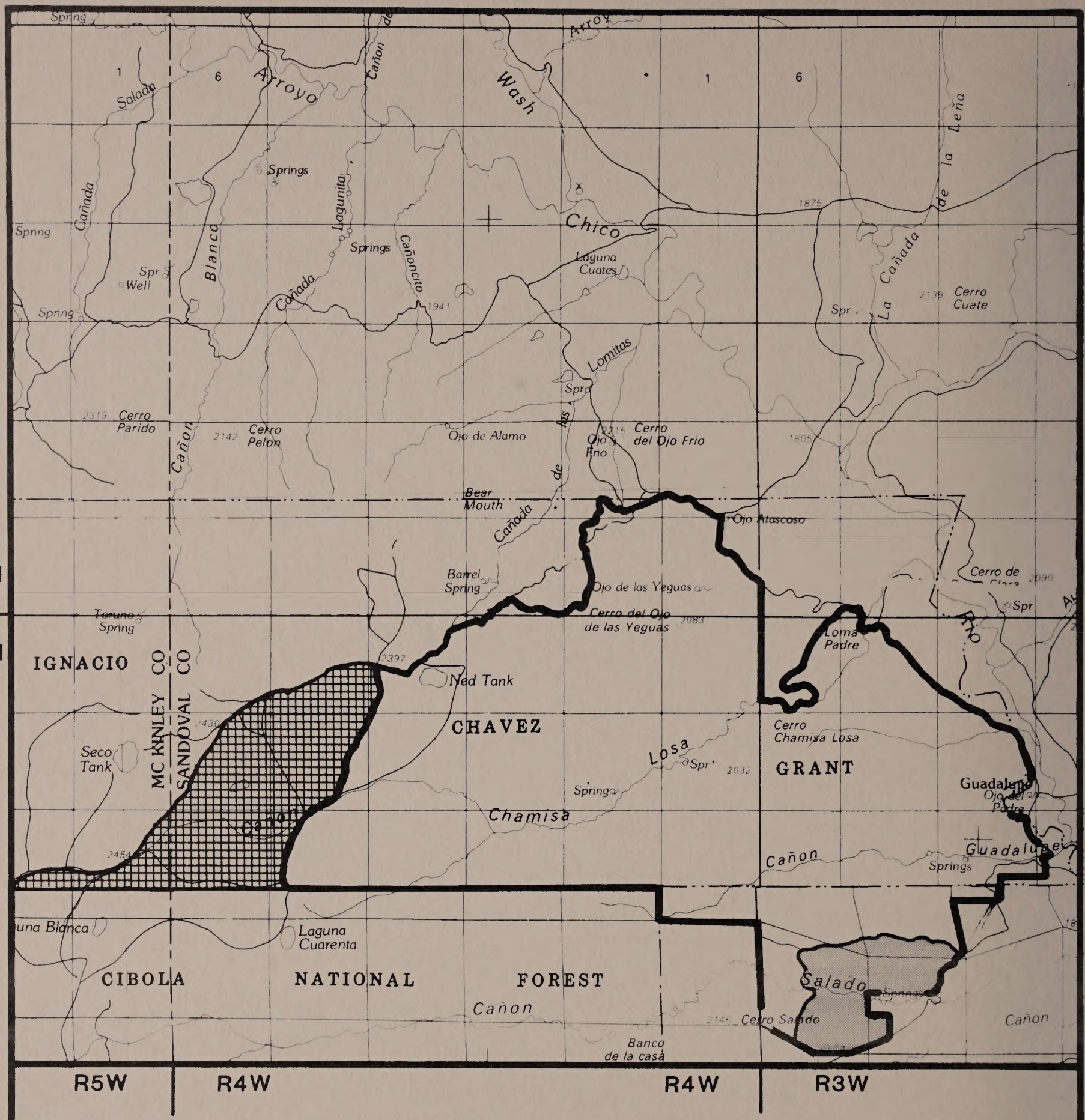
Legal Description (Prior to any Subdivision)	Total Acres	Number of Owners	Type of Ownership by Estate (BLM/ State/ Private) Surface Estate	Subsurface Estate	Proposed for Acquisition (Yes/No)	Preferred Method of Acquisition (Purchase/ Exchange/ Donation)	Estimated Costs of Acquisition[2] Land Costs	Processing Costs
Parcel #1, Sec. 18, T. 16N, R. 2W	26	1	Private	Private	Yes	Purchase	$5,200	$1,000

[1] The estimated costs listed in this appendix in no way represent a formal appraised value of the land or mineral estate, but are rough estimates based on sales or exchanges of lands or mineral estates with similar characteristics to those included in the WSA. The estimates are for purposes of establishing a range of potential costs to the government of acquiring non-Federal holdings and in no way represent an offer to purchase or exchange at the cost estimate included in this appendix.

[2] Processing costs are all miscellaneous expenses other than land costs. These would include work month costs, appraisals, title work, escrow costs, etc. Where direct purchase is proposed, an estimate of both the land costs and the processing costs is provided.

CHAMISA
WILDERNESS STUDY AREA

MAP I



RECOMMENDED FOR WILDERNESS

RECOMMENDED FOR NONWILDERNESS

LAND OUTSIDE WSA RECOMMENDED FOR WILD.

SPLIT ESTATE (None)

STATE (None)

PRIVATE (None)

N

0 1 2

MILES

Chamisa Proposal

NM-010-021

April 1990

CHAMISA
WILDERNESS STUDY AREA

THE STUDY AREA – 13,692 Acres

The Chamisa Wilderness Study Area (WSA), NM-010-021, is located 21 miles west of San Ysidro and 45 miles northwest of Albuquerque, New Mexico. The WSA includes 13,692 acres of Bureau of Land Management (BLM) land and 28 acres of private inholdings. (See Table 1 for land status and acreage summary of the study area.) The WSA is contiguous with the village of Guadalupe, is bounded on the north and east by a maintained road, on the south by the Cibola National Forest and a maintained road and on the west by a maintained road and fence lines separating it from the Ignacio Chavez WSA.

Approximately 88 percent of the Chamisa WSA is within the historic Ignacio Chavez Land Grant. This grant was awarded to settlers in 1768 by the Spanish government in order to establish communities. Since these communities were never developed, the land was reconveyed to the U.S. Government and placed under administration of the Department of Agriculture. Under the Bankhead-Jones Act of 1937, the land grant was then transferred to the predecessor of BLM for land conservation and utilization programs. The subsurface estate on Grant land was private until it reverted to the U.S. Government in 1989. The subsurface estate outside of the Grant is Federal.

The Chamisa WSA is situated within the Navajo Section of the Colorado Plateau Province. The WSA is characterized by outcrops of sandstone with lesser amounts of shale that have been subjected to intensive erosion. Landforms common to this WSA include mesas, cuestas, rock terraces, retreating escarpments, canyons, and arroyos.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. Four alternatives for the Chamisa WSA were analyzed in the EIS: an all wilderness alternative, two amended boundary alternatives, and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

15,758	Acres recommended wilderness
844	Acres recommended nonwilderness

The recommendation for the Chamisa WSA is to designate 15,758 acres as wilderness, including 2,910 acres of BLM land contiguous to the WSA, and release 844 acres to other uses (See Map 1). This recommendation is based on the WSA's high quality wilderness values, proximity to the Albuquerque and Santa Fe, New Mexico population centers, and the minimal amount of resource conflicts.

The reasons for not recommending the 844 acres for wilderness designation are to allow for the development of a camping and parking area between the Chamisa and Ignacio Chavez WSAs and to allow for needed access to lands south of the WSA. This recommendation is considered to be the environmentally preferable alternative as it will result in the least change to the natural environment over the long-term.

The WSA has an overall natural appearance, provides expansive topographical diversity, and exhibits unique vegetation characteristics. The scenic value of the diverse landforms contributes to the area's outstanding opportunities for solitude and primitive and unconfined recreation. Recreation opportunities include hiking, climbing, hunting, camping, and sightseeing. The WSA's proximity to the Albuquerque and Santa Fe population centers enhances the importance of wilderness designation.

The vegetated slopes and mesa tops in the WSA contrast sharply with arid desert lands to the northeast and south. Environmental transition zones exhibit excellent scenic and educational values providing scientists with a living laboratory in which to observe natural systems.

The WSA is important habitat for a large variety of game species, including mule deer, elk, Merriam's turkey, black bear, tassel-eared squirrel, cottontail rabbits, and mourning dove. Other wildlife species common to the area include coyotes, badgers, porcupines, Gunnison's prairie dog, golden eagles, sharpshinned hawks, red-tailed hawks, Stellar's jays, pinyon jays and gray-headed juncos.

The Chamisa WSA can be effectively managed as wilderness because of its rugged nature, lack of inholdings, rights-of-way, or long-term encumbrances by valid existing rights. The WSA is bounded on the north and east by a maintained dirt road, on the south by the Cibola National Forest and a maintained dirt road, and on the west by a maintained dirt road and fencelines. It is recommended the 2,910

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	13,692
Split-Estate (BLM Surface Only)	0
Inholdings	28
Total	13,720
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	12,848
BLM (Outside WSA)	2,910
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	15,758
Inholdings	0
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	844
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	844
Inholdings	28

acres of BLM land contiguous to the WSA, that contains wilderness characteristics similar to those in the WSA, be included to enhance overall effective management of the designated wilderness.

Conflicts with other resource uses in this WSA are limited. Grazing use will be allowed to continue and facility maintenance requirements in the WSA are minimal. The currently proposed livestock developments could be installed because they are intended to better protect the rangeland in a natural condition and not solely to allow for increased numbers of livestock.

The mineral survey conducted by the U.S. Geological Survey and U.S. Bureau of Mines revealed the area contained a measured resource of 2.2 million tons of coal and indicated resources of 4.7 million tons of coal at depths of 500 feet or less. The coal resource is mostly sub-economic because of the large amounts of overburden and the thin and discontinuous nature of the coal beds.

In the Chamisa WSA, some of the outcropping coal beds could be mined for limited local use, such as domestic heating. In making the recommendation for this WSA, BLM did consider the findings of the U.S. Geological Survey and U.S. Bureau of Mines mineral report regarding coal. However, it was determined that the high wilderness values of the WSA should be preserved even if development of the limited coal resources would be foregone.

The U.S. Geological Survey and U.S. Bureau of Mines also found the area has a moderate potential for the occurrence of oil and gas. This rating was based on the presence of oil fields about 12 miles to the west and 10 miles to the north of the WSA, oil shows in nearby drill holes, and favorable reservoir and stratigraphic traps. The resource potential is only moderate because the rocks in the WSA are intruded by volcanic plugs that may have raised the temperature of reservoir rocks above the limit for preservation of oil and gas, and because of possible loss of resources by flushing of reservoir formations with ground water. A total of 35 exploratory holes have been drilled within 2 1/2 miles of the WSA and 1 hole was drilled inside the WSA, but all were dry.

The WSA has inferred sub-economic resources of sand, gravel, and sandstone. Because of the abundance of these materials in the region, distance from markets, and lack of unique properties, they have no current economic potential for development. There is a low potential for metals, uranium, and geothermal energy.

In the 844 acres not being recommended for wilderness designation, 20 acres will be used for a camping and parking area to facilitate recreational uses in this area and in the adjoining Ignacio Chavez recommended wilderness area. The remaining 824 acres not recommended for wilderness designation will allow for the development of needed access to lands south of the WSA.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The imprints of man's work are substantially unnoticeable in the Chamisa WSA because of dense vegetation, rugged foothills, and steep slopes of features such as Mesa Chivato. Although some imprints of man's activities such as vehicle routes, fences, and other intrusions were identified in this WSA, their impact on naturalness is reduced by topographic and vegetation screening. Also, the overall effect of human imprints in the WSA is subdued when considering the small size, unobtrusiveness, and dispersed locations of intrusions. Therefore, the WSA is assessed as being affected primarily by the forces of nature, and is considered to exhibit the wilderness characteristic of naturalness.

Solitude

The mesas, large canyons, volcanic plugs, spectacular escarpments, numerous arroyos, washes, and smaller canyons of Chamisa WSA provide considerable topographic diversity. This diversity prevents one particular attraction from drawing large numbers of visitors which in turn supports dispersed use and enhances solitude. The Chamisa WSA also displays generous vegetation screening. Overall, the WSA possesses outstanding opportunities for the experience of solitude.

Primitive and Unconfined Recreation

Backpacking, hiking, and camping opportunities within the WSA are considered excellent. Sightseeing opportunities are plentiful along the rims of Chivato, Cortada, La Azabache, and El Banquito Mesas. Sightseeing opportunities related to historical, geological, botanical, and archeological values, big and small game hunting, horseback riding, bird watching, and photography exist throughout the WSA. Tremendous variation in terrain, environmental transition zones, and vegetation provide the user with a wide variety of opportunities to experience high quality primitive and undeveloped types of recreation.

Special Features

Visual appeal and the diversity of landforms and vegetation are perhaps the most outstanding special features of the Chamisa WSA. The vegetated slopes and mesa tops contrast sharply with arid desert land to the north, east, and west. Environmental transition zones exhibit excellent scenic and educational values, providing a living laboratory in which to observe natural systems.

Tassel-eared squirrels, sharpshinned hawks, red-tailed hawks, jays, and juncos inhabit the Chamisa WSA. The faunal diversity in this WSA is a function of the integration of several ecotypes to form a varied and productive wildlife habitat. The Chamisa WSA is within one of the most diverse and productive wildlife habitat areas on BLM administered land in northwest New Mexico.

The Chamisa WSA contains abundant seventeenth century Spanish and sixteenth century Indian cultural resource sites. Wood strips found in the Chamisa WSA give evidence of historic logging operations.

<u>Diversity in the National Wilderness Preservation System</u>

Expanding the diversity of natural systems and features as represented by ecosystems

The Chamisa WSA is within the Colorado Plateau Province. The potential natural vegetation (PNV) is 8,007 acres of grama/galleta steppe, 3,650 acres of juniper/pinyon woodland, and 2,035 acres of ponderosa pine-Douglas fir forest. Wilderness designation of the Chamisa WSA would add examples of these three ecosystems to the National Wilderness Preservation System (NWPS). The ecosystem information is summarized in Table 2.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of Albuquerque and Santa Fe, New Mexico. Table 3 summarizes the number and acreages of designated areas and other BLM study areas within a 5-hour drive of these population centers.

Balancing the geographic distribution of wilderness areas

Designating the Chamisa WSA as wilderness would slightly contribute to balancing the geographic distribution of wilderness. In the nearby region, there are four designated wilderness areas totalling approximately 191,000 acres.

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Colorado Plateau Province				
Grama/Galleta Steppe	8	164,365	13	89,646
Juniper/Pinyon Woodland	11	1,401,745	84	2,140,355
Ponderosa Pine/Douglas Fir Forest	6	125,523	7	16,897
New Mexico				
Colorado Plateau Province				
Grama/Galleta Steppe	6	105,255	13	89,646
Juniper/Pinyon Woodland	4	33,084	13	138,917
Ponderosa Pine/Douglas Fir Forest	5	80,523	2	10,800

Table 3: Wilderness Opportunities for Residents of Major Population Centers

NWPS Areas Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	691,501
Santa Fe	21	1,422,038	23	382,515

Manageability

The Chamisa WSA can be effectively managed as wilderness because of its rugged nature and lack of inholdings, rights-of-way, or long-term encumbrances by valid existing rights.

There are four post-FLPMA and four future interest oil and gas leases in the Chamisa WSA. These are not expected to be explored or developed before they expire. There are no mining claims in the WSA.

The Chamisa WSA presently can be managed as wilderness, but it would be desirable that it be administered in conjunction with the Ignacio Chavez, La Lena, and Empedrado WSAs as one wilderness. The recommended name for this wilderness complex is Boca del Oso.

Although not essential to effective management of the Chamisa WSA, the following boundary modifications would enhance overall management of the WSA as wilderness. Under Amended Boundary Alternative I (Proposed Action), 20 acres excluded from the Chamisa WSA in the vicinity of Barrel Springs would permit vehicle parking along a narrow road where few vehicular pull off points are available. Potable water, interpretive trailhead information, and a motorized campsite could be developed at this location to serve the users.

The Ignacio Chavez and Chamisa WSAs are contiguous except for 2,930 acres where fuelwood harvest has occurred in the past. Including 2,910 of these acres in the Chamisa WSA would assist in more effective management of both the Ignacio Chavez and Chamisa WSAs by preventing activities on this acreage that are generally not compatible with wilderness management. Twenty of these acres were not recommended to be added to the Chamisa WSA so that there would be another campsite to accommodate vehicular use. These two campsites would prevent users from randomly parking off the boundary road between the WSAs, which could ultimately impact wilderness values.

Under the proposed action, 824 acres would be removed from the Chamisa WSA to resolve an access management conflict. This deletion would permit the construction of access to BLM land south of Chamisa WSA.

Energy and Mineral Resource Values

In 1985, 1987, and 1988, the U.S. Geological Survey and U.S. Bureau of Mines conducted a mineral resource appraisal of the Chamisa WSA. This study included an examination of geologic, geochemical, and geophysical data, as well as review and assessment of local mining activity. The following is a summary of their findings.

The mineral survey revealed the area contained a measured coal resource of 2.2 million tons and indicated resources of 4.7 million tons at depths of 500 feet or less. The coal resource is considered by the U.S. Geological Survey and U.S. Bureau of Mines as mostly sub-economic because of the large amounts of overburden and the thin and discontinuous nature of the coal beds.

The mineral survey also found the area has a moderate potential for the occurrence of oil and gas. This rating was based on the presence of oil fields about 12 miles to the west and 10 miles to the north of the WSA, oil shows in nearby drill holes, and favorable reservoir and stratigraphic traps. However, the reservoir formations in the WSA are intruded by volcanic plugs that may have raised the temperature above the limit needed for preservation of oil and gas, and because of possible flushing by groundwater. A total of 35 exploratory holes have been drilled within 2 1/2 miles of the WSA and 1 hole was drilled in the WSA, but all the holes were dry.

The WSA has inferred sub-economic resources of sand, gravel, and sandstone. Because of the abundance of these materials in the region, distance from markets, and lack of unique properties, they have no current potential for development. There is a low potential for all metals, uranium, and geothermal energy.

Impacts on Resources

A comparative summary of impacts by alternative for the Chamisa WSA is shown on Table 4. This information is taken from the Final EIS, however, it has been revised to include the updated information from the 1985, 1987, and 1988 U.S. Geological Survey and U.S. Bureau of Mines mineral survey report.

The mineral data indicate there are no areas in the WSA with high oil and gas potential, the entire WSA is classified as having a moderate potential for the occurrence of oil and gas, and there are identified coal resources, totalling 6.9 million tons.

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (13,692 Acres Suitable)	No Wilderness (0 Acres Suitable)	Amended Boundary (Proposed Action; 15,758 Acres Suitable)	Amended Boundary (12,625 Acres Suitable)
Impacts On Wilderness Values	The natural character of this area and opportunities for solitude and primitive recreation opportunities such as hiking, camping, and hunting would be maintained. Raptor, scaled quail, mourning dove, turkey and non-game species nesting sites and critical deer winter range would be protected.	There would be no impacts on wilderness values in the short-term. Over the long- term, up to 6 miles of new roads related to oil and gas exploration and ORV uses would reduce naturalness and solitude in the southern half of the WSA. Further exploration and potential development of the coal resources is not anticipated. The coal was not recommended for further leasing consideration in the Rio Puerco Resource Management Plan and USGS/BM concluded development was unlikely due to thick overburden and thin discontinuous character of the coal beds.	Impacts would be the same as for the All Wilderness Alternative, except that 2,910 acres of contiguous BLM land added to the recommended wilderness would be subject to the same impacts. Wilderness values on the 844 acres not designated wilderness would be lost.	Impacts would be the same as the No Wilderness Alternative for the 1,067 acres excluded from wilderness designation. For the 12,625 acres recommended for wilderness designation impacts would be the same as for the All Wilderness Alternative.

Table 4: Comparative Summary of Impacts by Alternative (Continued)

Issue Topics	All Wilderness (13,692 Acres Suitable)	No Wilderness (0 Acres Suitable)	Amended Boundary (Proposed Action; 15,758 Acres Suitable)	Amended Boundary (12,625 Acres Suitable)
Impacts On Oil and Gas, Coal and Humate Exploration and Development	The 13,692 acres with moderate potential for oil and gas would be closed to exploration and development. The 11,852 acres currently leased would be subject to lease stipulations protecting wilderness. Moderate levels of exploration and low levels of development would be precluded, resulting in the loss of 1 producing well for every 600 to 4,800 acres. Development of the 2.2 million measured tons of coal and indicated resources of 4.6 million tons of coal for local domestic home heating use would be foregone.	No impact is anticipated.	Impacts would be the same as for the All Wilderness Alternative, except that on 2,910 acres with moderate potential for oil and gas added to the wilderness recommendation would be closed to leasing, exploration and development. The acreage currently leased would be subject to stipulations protecting wilderness. The 844 acres excluded from designation and having a moderate potential for oil and gas would be available for exploration and development. Coal development on 844 acres is unlikely for the same reasons stated in the All Wilderness Alternative.	Impacts would be the same as for the All Wilderness Alternative, except that 12,625 acres with moderate potential for oil and gas would be closed to leasing, exploration and development. The 1,067 acres excluded from designation with moderate potential for oil and gas would be available for mineral activities. Coal development on 1,067 acres is unlikely for the same reasons stated in the All Wilderness Alternative.
Impacts On Recreational Off-Road Vehicle (ORV) Use	The existing 11 miles of vehicle routes would be closed to back-country riding and exploring, vehicle camping and hunting.	No impacts on ORV use in the short or long-term would occur.	Impacts would be the same as for the All Wilderness Alternative, except that 2,910 additional acres outside the WSA would be closed to all types of ORV activities. This includes 2 more miles of vehicle routes for a total of 13 miles.	Impacts would be the same as for the All Wilderness Alternative, except that 1,067 acres excluded would have vehicle use limited to existing roads and trails. Ten of the 11 miles of routes in the WSA would be closed..

Table 4: Comparative Summary of Impacts by Alternative (Concluded)

Issue Topics	All Wilderness (13,692 Acres Suitable)	No Wilderness (0 Acres Suitable)	Amended Boundary (Proposed Action; 15,758 Acres Suitable)	Amended Boundary (12,625 Acres Suitable)
Impacts On Livestock Grazing Use Levels.	The current grazing use levels of approximately 7 head/section/year would continue. Permits would be required for vehicle access to rangeland improvements. Casual vehicle use on 11 miles of routes for inspection and minor repairs would be precluded. Operator cost would increase and inconvenience would occur. New rangeland improvements (4 troughs, 9 miles of pipeline and 3/4 miles of fence) will only be allowed if needed for resource protection.	The current grazing use levels of approximately 7 head/section/year would continue. No wilderness limitations would be imposed on maintenance, repair, or construction of improvements listed under the All Wilderness Alternative.	Impacts would be the same as for the All Wilderness Alternative, except that 2,910 additional acres, 2 more miles of vehicle routes and 3 earthen reservoirs would be impacted by wilderness restrictions.	Impacts on 12,625 acres would be the same as for the All Wilderness Alternative, except the excluded area would be available for vehicle use on 1 mile of existing routes and wilderness restrictions would not apply to other grazing activities in this portion of the WSA.
Impacts On The Utilization of Wood Products	In the long-term approximately 166 cords of fuelwood and 2,250 board feet of commercial timber would not be harvested each year.	No impacts on utilization of wood products in the short- or long-term would occur.	Impacts would be the same as for the All Wilderness Alternative, except that the additional 2,910 acres would be subject to similar impacts. The 20 acres excluded would be unavailable for woodland management because of its proposed use as a campsite accessible to motor vehicles.	Impacts would be the same as the All Wilderness Alternative on the area designated as wilderness. Impacts would be the same as the No Wilderness Alternative on the acreage containing fuelwood and timber which is excluded from wilderness designation.

Local Social and Economic Considerations

No local social or economic considerations were identified in the New Mexico Statewide Wilderness Study; therefore, no further discussion of this topic will occur in this document.

Summary of WSA-Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Chamisa area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). Proponents of wilderness designation during the inventory and wilderness study area decisions involvement efforts cited the Chamisa WSA's wide ecosystem diversity, large size, and apparent natural character. The WSA's proximity to Albuquerque and Santa Fe and availability for use by this large segment of New Mexico's population were cited as important reasons for WSA designation. Opponents of wilderness designation for the Chamisa WSA discussed the effects of excluding the areas from possible future mineral exploration and development, the presence of human impacts, and possible limitations on ranch operations.

The Secretary of the Interior in December 1982 issued a legal notice which removed from wilderness study all areas with Federal surface ownership and private mineral estate, and areas of less than 5,000 acres. The entire Chamisa WSA was dropped from further wilderness review by this decision because the WSA contained privately owned minerals overlain by land administered by BLM. A court decision issued in April 1985 reversed the Secretarial action resulting in reinstatement of the WSA into the BLM wilderness review program.

Wilderness Study Comments

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985), BLM received 465 comments in the form of letters and testimony at public hearings. Alternative W, a 1.3-million acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition, was supported by 340 commenters. Alternative W recommended that Chamisa WSA be added back into the study process and the area be recommended for wilderness designation.

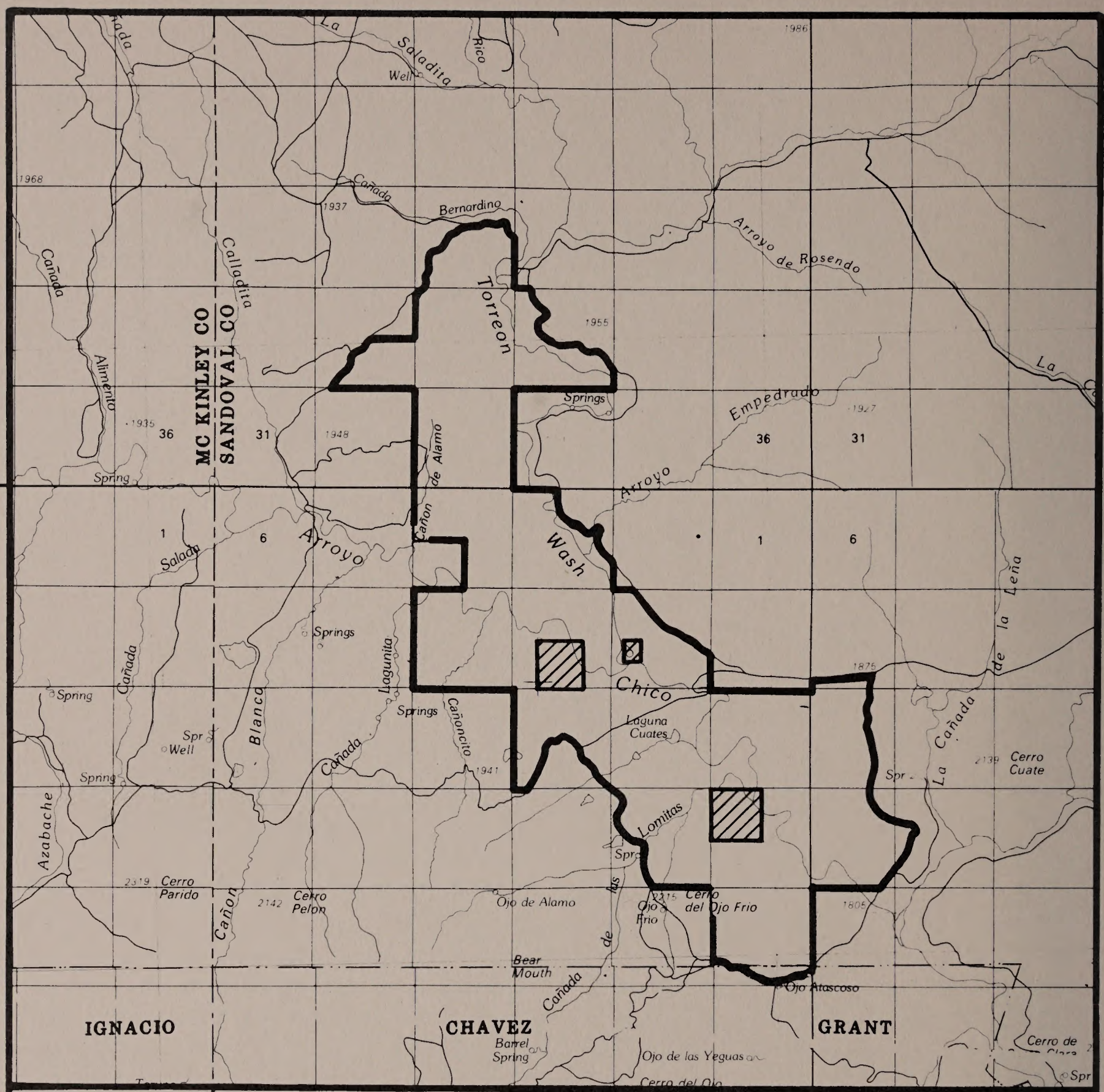
During the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), specific comments were directed to the Chamisa WSA by 27 commenters. Twenty six commenters favored wilderness designation stated as reasons protection of scenery, recreation, ecosystems and wildlife resources. Other reasons offered were the WSA meets wilderness criteria, designation would not have an economic impact, and would protect the area from overuse. Some commenters felt that wilderness boundaries should be enlarged, more designated wilderness areas are needed, and non-designation forecloses future wilderness consideration. Some commenters stated that the WSA's proximity to population centers enhanced the area's value as wilderness, designation would not impact other resource uses and would complement management of other nearby proposed wilderness areas.

The New Mexico BLM Wilderness Coalition expressed support of the Boca del Oso Wilderness Complex consisting of the Chamisa, Empedrado, La Lena, and Ignacio Chavez WSAs.

One commenter opposed wilderness designation because it was felt that not enough in depth analysis was performed and data were weak. Other reasons cited were the area's low wilderness values, presence of too many intrusions, and increased costs of government and taxes for wilderness management. In addition, it was felt that wilderness designation would adversely impact the mining industry.

EMPEDRADO
WILDERNESS STUDY AREA

MAP I



RECOMMENDED FOR WILDERNESS

RECOMMENDED FOR NONWILDERNESS (None)

LAND OUTSIDE WSA RECOMMENDED FOR WILD. (None)

SPLIT ESTATE (None)

STATE (None)

PRIVATE

N

0 1 2

MILES

Empedrado Proposal

NM-010-063

April 1990

EMPEDRADO
WILDERNESS STUDY AREA

THE STUDY AREA — 9,007 Acres

The Empedrado Wilderness Study Area (WSA), NM-010-063, is located about 4 miles northwest of the village of Guadalupe, New Mexico. The WSA contains 9,007 acres of Bureau of Land Management (BLM) land and 340 acres of private surface inholdings, with 320 of those acres also having private mineral estate. (See Table 1 for land status and acreage summary of the study area). The WSA is bounded on the north, east, and south by maintained roads and on the west by a combination of maintained roads and property boundaries.

In the extreme southern end of the Empedrado WSA, 44 acres are within the historic Ignacio Chavez Land Grant. This grant was awarded to settlers in 1768 by the Spanish government in order to establish communities. Since these communities were never developed, the land was reconveyed to the U.S. Government and placed under administration of the Department of Agriculture. Under the Bankhead-Jones Act of 1937, the land grant was then transferred to the predecessor of BLM for land conservation and utilization programs. In 1989, the 44 acre subsurface estate reverted to the U.S. Government.

The WSA is within the Navajo Section of the Colorado Plateau Province. The Navajo Section is characterized by outcrops of sandstone with lesser amounts of shale that have been subjected to intensive arid cycle erosion. Regional landforms include mesas, cuestas, rock terraces, retreating escarpments, canyons, and arroyos. About 500 feet of relief exists in the Empedrado WSA, ranging from a low elevation of about 6,000 feet in Torreon Wash to 6,552 feet on a mesa top. Major drainages include Arroyo Piedra Lumbre, Arroyo Empedrado, Torreon Wash, and Arroyo Chico. The overall landform consists of sandstone hills dissected by arroyos.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. Two alternatives for the Empedrado WSA were analyzed in the EIS: an all wilderness alternative and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

9,007	Acres recommended wilderness
0	Acres recommended nonwilderness

The recommendation for the Empedrado WSA is to designate the entire area as wilderness (see Map 1). The WSA contains scenic values, outstanding opportunities for solitude, diverse wildlife values, and a minimal amount of resource conflicts. This recommendation is also considered to be the environmentally preferable alternative as it will result in the least change to the natural environment over the long-term. This recommendation for wilderness will further apply to any additional inholding or split- estate acreage acquired through purchase or exchange with willing owners. Appendix 1 lists all inholdings and split-estate tracts and provides additional information on methods and costs of acquisition.

The WSA's scenic values and diverse landforms contribute to the area's outstanding opportunities for solitude. The WSA's broken terrain, combined

with vegetation screening, minimizes the effects of man's activities and enhances opportunities for solitude.

The WSA contains a diversity of wildlife including mule deer, gray fox, coyote, badger, prairie dogs, and scaled quail. Birds of prey common to the area include golden eagle, red-tailed hawk, and great horned owl. The wildlife habitat is enhanced by the riparian vegetation along Arroyo Chico.

The Empedrado WSA could be managed to preserve wilderness values in the long-term. The current and projected use of 325 acres of inholdings is for livestock grazing. Of this total, 325 acres have private mineral estate. While the WSA has been rated as moderate for the potential occurrence of oil and gas, development is not anticipated. The U.S. Geological Survey and U.S. Bureau of Mines mineral survey report identified that two wells drilled in the WSA were dry. There are nine post-FLPMA oil and gas leases in the WSA. These mineral interests are not expected to be explored or developed before they expire.

Conflicts with other resource uses in this WSA are limited. Grazing use will be allowed to continue. Facility maintenance requirements in the WSA are minimal. The currently proposed livestock developments could be installed because they are intended to better protect the rangeland in a natural condition and not solely to allow for increased numbers of livestock.

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	9,007
Split-Estate (BLM Surface Only)	0
Inholdings	325
Total	9,332
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	9,007
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	9,007
Inholdings	325
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	0
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	0
Inholdings	0

The mineral survey conducted by the U.S.Geological Survey and U.S. Bureau of Mines revealed the area contained a measured resource of 3.9 million tons of coal and indicated resources of 9.8 million tons of coal at depths of 500 feet or less.

Approximately 25 million tons are required to start up a mining operation that would produce over 1 million tons a year for a projected 20-year mine life, and would meet power plant requirements. The mineral report only identified measured coal reserves of 3.9 million short tons in the WSA. While there is additional coal resources indicated in the WSA and on adjacent public lands, there is no evidence presently available to demonstrate the coal would meet the criteria for economic development.

Due to the limited economic viability of the coal and the high natural values of the area, the 1986 Rio Puerco Resource Management Plan decision was not to lease coal in this WSA. The recommendation to designate the WSA wilderness did consider the findings of the U.S. Geological Survey and U.S. Bureau of Mines mineral report regardng coal. However, it was determined that the high wilderness values of the WSA should be preserved even if development of the coal resources would be foregone.

The U.S. Geological Survey and U.S. Bureau of Mines also found the area has a moderate potential for the occurrence of oil and gas. This rating was based on the presence of oil fields about 10 miles to the north and 12 miles to the west of the WSA, oil shows in nearby drill holes, and favorable reservoir and stratigraphic traps. The resource potential is only moderate because the rocks are intruded by volcanic plugs that may have raised the temperature of reservoir rocks above the limit for preservation of oil and gas, and because of possible flushing of reservoir formations with ground water.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

Although some imprints of man's activities such as vehicle routes, fences, and other intrusions were identified in this WSA, their impact on naturalness is reduced by topographic and vegetation screening. Also, the overall effect of human imprints in the WSA is subdued when considering the small size, unobtrusiveness, and dispersed locations of intrusions. Therefore, the WSA is assessed as being affected primarily by the forces of nature and is considered to exhibit the wilderness characteristic of naturalness.

Solitude

The broken terrain of Empedrado WSA, including the mesas, rolling grasslands, arroyos, and washes combined with the pinyon-juniper cover in the northwestern portion of the WSA, buffers user groups from each other. Winding washes and steep-sided mesas in the northern portion of the WSA provide ample opportunity for visitors to experience a feeling of remoteness and isolation.

Overall, opportunities for solitude within Empedrado WSA are considered to be outstanding.

Primitive and Unconfined Recreation

The Empedrado WSA contains opportunities for camping, hunting, sightseeing, and photography. Primitive and unconfined recreation opportunities were rated as less than outstanding by BLM during the wilderness inventory.

Special Features

The Empedrado WSA has special cultural, scenic, wildlife, and vegetation features. Although wild-life is not abundant, a good diversity of species is present. Species diversity is influenced by the presence of riparian vegetation along Arroyo Chico. Several cultural resource sites have been noted, including petroglyphs. Expansive scenic vistas of the surrounding landscape features are provided from mesas in this WSA. The southern portion of the WSA is an integral part of the view from surrounding WSAs.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The Empedrado WSA lies within the Colorado Plateau Province. The potential natural vegetation (PNV) consists of 2,264 acres of grama/galleta steppe and 6,743 acres of juniper/pinyon woodland. Wilderness designation of the Empedrado WSA would add examples of these two ecosystems to the National Wilderness Preservation System (NWPS). This information is summarized in Table 2.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of Albuquerque and Santa Fe, New Mexico. Table 3 summarizes the number and acreages of designated areas and other BLM study areas within a 5-hour drive of these population centers.

Balancing geographic distribution of Wilderness Areas

Designating the Empedrado WSA as wilderness would slightly contribute to balancing the geographic distribution of wilderness. In the nearby region, there are four designated wilderness areas totalling approximately 191,000 acres.

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Colorado Plateau Province/				
Grama/Galleta Steppe	8	164,365	13	95,389
Juniper/Pinyon Woodland	11	1,401,745	84	2,137,262
New Mexico				
Colorado Plateau Province/				
Grama/Galleta Steppe	6	105,255	13	95,389
Juniper/Pinyon Woodland	4	32,084	13	135,824

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	696,186
Santa Fe	21	1,422,038	23	387,200

Manageability

The Empedrado WSA could be managed to preserve wilderness values in the long-term. The current and projected use of 325 acres of inholdings is livestock grazing. All of this acreage has private mineral estate. While the WSA has been rated as moderate for the potential occurrence of oil and gas, development is not anticipated. The U.S. Geological Survey and U.S. Bureau of Mines mineral survey report identified that two wells drilled in the WSA were dry.

Although not essential to effective management of Empedrado WSA as wilderness, it would be desirable to acquire the 325 acres of private surface and private mineral estate inholdings. Appendix 1 lists all inholdings and split-estate tracts and provides additional information on methods and costs of acquisition. There are nine post-FLPMA oil and gas leases in the WSA. These mineral interests are not expected to be explored or developed before they expire.

There is every reason to conclude that the Empedrado WSA can be effectively managed as wilderness in perpetuity. Although not essential to effective management of the Empedrado WSA, it is considered desirable to manage this WSA as part of the Boca del Oso Wilderness Complex which would also include the adjacent Ignacio Chavez, Chamisa, and La Lena WSAs.

Energy and Mineral Resource Values

In 1985, 1987, and 1988, the U.S.Geological Survey and U.S. Bureau of Mines conducted a mineral resource appraisal of Empedrado WSA. This study included an examination of geological, geophysical, and geochemical data as well as a review and assessment of local mining activity. The mineral survey revealed the area contained a measured coal resource of 3.9 million tons and indicated resources of 9.8 million tons at depths of 500 feet or less. An exploration license was granted to Western Energy Company on the Chico Wash Tract, 3 miles west of the WSA. In 1983, the company drilled 29 holes to evaluate the coal and found the coal not economic due to the thin lenticular character of the beds and high ash content.

The Empedrado WSA was rated as having a moderate energy resource potential for oil and gas. This rating was based on the presence of oil fields about 10 miles to the north and 12 miles to the west of the WSA, oil shows in nearby drill holes, and favorable reservoir and stratigraphic traps beneath the study area. The resource potential is only moderate because the rocks in the WSA are intruded by volcanic plugs that may have raised the temperature above the limit needed for preservation of oil and gas, and because of possible flushing by ground water. Oil shows were found in two nearby drill holes; however, two holes drilled within the study area were dry.

The WSA has low potential for all metals including uranium, barium, strontium, zinc, silver, and molybdenum, and for geothermal energy.

Impacts on Resources

A comparative summary of impacts by alternative for the Empedrado WSA is shown on Table 4. This information is taken from the Final EIS. However, the 1985, 1987, and 1988, USGS and U.S. Bureau of Mines mineral appraisal lowered the BLM estimate of potential for oil and gas from high on 386 acres to moderate for the entire WSA. The more recent data are reflected in Table 4.

Local Social and Economic Considerations

No local social or economic considerations were identified in the New Mexico Statewide Wilderness Study; therefore, no further discussion of this topic will occur in this document.

Summary of WSA-Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Empedrado area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). During the wilderness inventory phase, those people supporting WSA status for the Empedrado area cited as justification its natural character, opportunities for solitude and opportunities for primitive and unconfined recreation. Cultural and visual supplemental values were also noted.

Opponents of WSA designation discussed the effects of excluding Empedrado WSA from possible future mineral exploration and development, the presence of human impacts, and possible limitations placed on ranch operations.

The Secretary of the Interior in December 1982 issued a legal notice which removed from wilderness study all areas with Federal surface ownership and private mineral estate, and areas of less than 5,000 acres. In the Empedrado WSA, 44 acres at the extreme southern end were dropped from further wilderness review by this decision because the acreage contained privately owned minerals overlain by land administered by the BLM. A court decision issued in April 1985 reversed the Secretarial action resulting in reinstatement of the WSA into the BLM wilderness review program.

Wilderness Study Comments

During the public comment period on the *Albuquerque District Wilderness Draft Environmental Assessment* (EA) (1983), 29 public comments were received concerning the reduction in acreage for Empedrado WSA. Ten comments expressed opposition to wilderness designation due to the lack of naturalness, a high favorability for coal and humates as well as a moderate favorability for uranium, thorium, oil and gas.

Nineteen commenters favored wilderness designation stating that the Empedrado WSA contained outstanding opportunities for primitive recreation and solitude, and could be easily managed for wilderness. Resource conflicts due to possible wilderness designation were not considered significant. One commenter felt the No Wilderness Alternative (with Area of Critical Environmental Concern designation to protect visual values) would not be adequate to protect the WSA's scenic values.

Miscellaneous comments suggested combining the southern portion of the Empedrado WSA with the eastern portion of the Ignacio Chavez WSA. It was also suggested that the Draft EA did not adequately recognize the high uranium and oil and gas potential of the Empedrado WSA; no information was submitted to support this assessment of high potential.

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985), 17 commenters specifically addressed the Empedrado WSA with all

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (Proposed Action; 9,007 Acres Suitable)	No Wilderness (0 Acres Suitable)
Impacts on Wilderness Values	The natural character of mesas and rolling grasslands and opportunities for solitude, hiking, and camping would be maintained. Raptor, scaled quail, and non-game nest sites, other wildlife habitat, and current undisturbed condition of cultural resources would be protected. Naturalness and solitude opportunities would be diminished in 5 percent of the area as a result of providing access to private inholdings.	In the short-term, there would be no impacts on wilderness values. In the long-term, ORV activity would increase as a result of additional access for mineral activities. This would result in a 20-30 percent decrease in the quality of naturalness and opportunities for solitude and primitive and unconfined recreation.
Impacts on Oil and Gas, Coal, and Humate Exploration and Development	Exploration and development of mineral resources in this moderate potential area would be foregone. Development of 3.9 million tons of measured coal and 9.8 million tons of indicated coal resources would be foregone. Development is possible only if coal is combined with coal outside the WSA.	No impacts.
Impacts on Livestock Grazing Use Levels	The current grazing use levels of approximately 8 head/section/year would continue. Permits would be required for vehicle access to 9 earthen reservoirs and 15 miles of fence improvements. Casual vehicle use on 3 miles of routes for inspections and minor repairs would be precluded.	No impacts on current grazing use levels of approximately 8 head/section/year.
Impacts on Recreational Off-Road Vehicle (ORV) Use	The existing 3 miles of vehicular routes would be closed to backcountry driving and exploring, vehicle camping, and hunting using motorized vehicles.	No impacts on recreational ORV use in the short- or long-term.

supporting wilderness designation of the area. Another 340 commenters supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition. Alternative W included the Empedrado WSA and recommended wilderness designation for the entire WSA.

None of these comments required specific responses, revisions to the affected environment, or analysis of environmental impacts.

During the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), specific comments were directed to the Empedrado WSA by 27 commenters. Twenty-four commenters favored wilderness designation. Supporting reasons included protection of scenery, recreation, ecosystems, wildlife, cultural and other resources. Other reasons offered were the WSA meets wilderness criteria and designation would be compatible with multiple use and not have an economic impact. Some commenters felt that wilderness boundaries should be enlarged, more wilderness areas are needed, and non-designation forecloses future wilderness consideration. Other commenters indicated that designation of this area would complement nearby proposed wilderness areas and the proximity of this area to population centers enhanced its value for wilderness.

Three commenters opposed wilderness designation because such an action would adversely impact the livestock and minerals industries, the area has high mineral values, too large an area is within the proposed wilderness boundary, too many intrusions exist, and the area does not meet wilderness criteria.

Appendix 1: Estimated Costs of Acquisition of Non-Federal Holdings Within the Empedrado WSA[1]

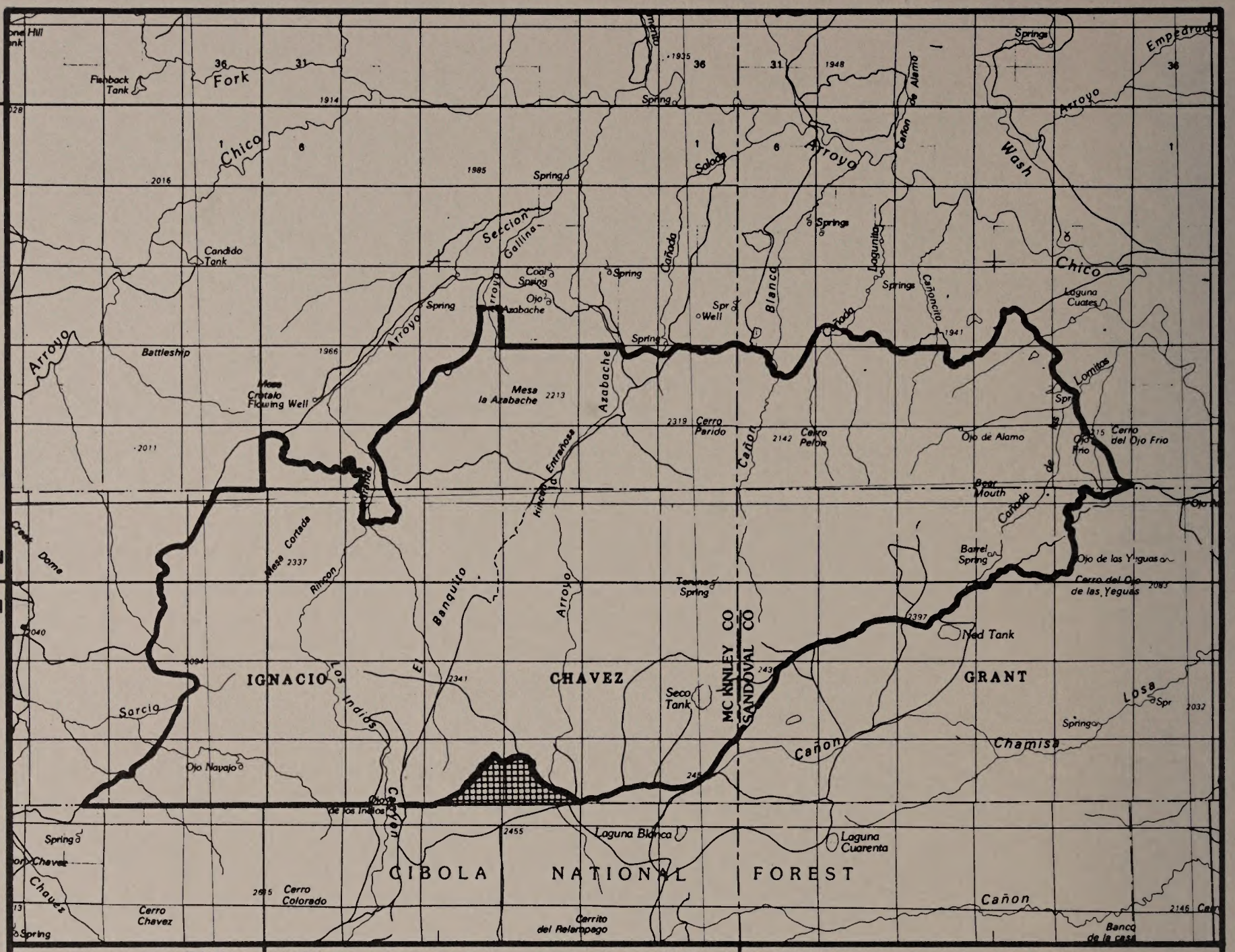
Legal Description (Prior to any Subdivision)	Total Acres	Number of Owners	Type of Ownership by Estate (BLM/ State/ Private) Surface Estate	Subsurface Estate	Proposed for Acquisition (Yes/No)	Preferred Method of Acquisition (Purchase/ Exchange/ Donation)	Estimated Costs of Acquisition[2] Land Costs	Processing Costs
Parcel #1, Sec. 10, T. 16N, R. 4W	160	1	Private	Private	Yes	Purchase	$32,000	$5,000
Parcel #2, Sec. 11, T. 16N, R. 4W	5	1	Private	Private	Yes	Purchase	$ 1,000	$1,000
Parcel #3, Sec. 24, T. 16N, R. 4W	160	1	Private	Private	Yes	Purchase	$32,000	$5,000

[1] The estimated costs listed in this appendix in no way represent a formal appraised value of the land or mineral estate, but are rough estimates based on sales or exchanges of lands or mineral estates with similar characteristics to those included in the WSA. The estimates are for purposes of establishing a range of potential costs to the government of acquiring non-Federal holdings and in no way represent an offer to purchase or exchange at the cost estimate included in this appendix.

[2] Where exchange is the proposed acquisition method, only administrative costs of processing the exchange are shown. Processing costs are all miscellaneous expenses other than land costs. These would include work month costs, appraisals, title work, escrow costs, etc. Where direct purchase is proposed, an estimate of both the land costs and the processing costs is provided.

IGNACIO CHAVEZ
WILDERNESS STUDY AREA

MAP 1



RECOMMENDED FOR WILDERNESS

RECOMMENDED FOR NONWILDEDNESS (None)

LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS

SPLIT ESTATE (None)

STATE (None)

PRIVATE (None)

N

0 1 2

MILES

Ignacio Chavez Proposal

NM-010-020

April 1990

IGNACIO CHAVEZ
WILDERNESS STUDY AREA

THE STUDY AREA - 33,264 Acres

The Ignacio Chavez Wilderness Study Area (WSA), NM-010-020, is located approximately 25 miles west of San Ysidro and 50 miles northwest of Albuquerque, New Mexico. The WSA contains 33,264 acres of Bureau of Land Management (BLM) land. (See Table 1 for land status and acreage summary of the study area.) The WSA is bounded on the north and west by BLM and private lands, on the south by the Cibola National Forest, and on the east by other BLM land.

Approximately two thirds of the Ignacio Chavez WSA is within the historic Ignacio Chavez Land Grant. This grant was awarded to settlers in 1768 by the Spanish government in order to establish communities. Since these communities were never developed, the land was reconveyed to the U.S. Government and placed under administration of the Department of Agriculture. Under the Bankhead-Jones Act of 1937, the land grant was then transferred to the predecessor of the BLM for land conservation and utilization programs. Subsurface estate on the Grant land was private until it reverted to the U.S. Government in 1989.

The Ignacio Chavez WSA is situated on the boundary between the Navajo and Datil Sections of the Colorado Plateau Province. Much of the northern part of the WSA is in the Navajo Section and is characterized by outcrops of horizontally bedded sandstone with lesser amounts of shale that have been subjected to intensive erosion. Landforms common to this part of the WSA include mesas, cuestas, rock terraces, retreating escarpments, canyons and arroyos. These landforms are in striking contrast to the southern portion of the WSA which is in the Datil Section. Volcanism in the Cenozoic Era created most of the Datil Section landforms including basalt plains, cinder cones, exhumed plugs and dikes and extensive talus slopes.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. Four alternatives for the Ignacio Chavez WSA were analyzed in the EIS: an all wilderness alternative, two amended boundary alternatives, and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

33,609	Acres recommended wilderness
0	Acres recommended nonwilderness

The 33,264 acres within the Ignacio Chavez WSA as well as 345 acres of BLM land contiguous to the WSA are recommended for wilderness designation (see Map 1). This recommendation is based on the WSA's high quality wilderness values, close proximity to Albuquerque, diverse wildlife values and the minimal amount of resource conflicts. This is also considered to be the environmentally preferable alternative as it will result in the least change to the natural environment over the long-term.

The WSA has an overall natural appearance, provides expansive topographical diversity, and exhibits unique vegetation characteristics supporting one of the most diverse and productive wildlife habitat areas on BLM land in northwest New Mexico. The WSA's scenic values from diverse landforms

and close proximity to the Albuquerque population center contribute to the area's outstanding opportunities for solitude and primitive and unconfined recreation. Recreation opportunities include hiking, climbing, hunting, camping, and sightseeing.

The densely vegetated slopes and mesa tops contrast sharply with arid desert lands to the northeast and south. Environmental transition zones exhibit excellent scenic and educational values, providing scientists with a living laboratory in which to observe natural systems.

The mixture of pinyon pine and juniper woodlands, ponderosa pine with an oak understory, and open grassland parks along with the protection afforded by the steep slopes and cliffs of Mesa Chivato provide excellent habitat for many species of wildlife. The WSA is important habitat for a large variety of game species including mule deer, elk, Merriam's turkey, black bear, tassel-eared squirrel, cottontail rabbits, and mourning dove. Other wildlife species common to the area include coyotes, badgers, porcupines, Gunnison's prairie dog, golden eagles, sharp-shinned hawks, red-tailed hawks, Stellar's jays, pinyon jays and gray-headed juncos. The elevated sites of Cerro Parido and Bear's Mouth are considered particularly important for golden eagle nesting.

The Ignacio Chavez WSA can be effectively managed as wilderness because of the rugged nature, lack of inholdings, rights-of-way, or long-term encumbrances by valid existing rights. The WSA is

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	33,264
Split-Estate (BLM Surface Only)	0
Inholdings	0
Total	33,264
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	33,264
BLM (Outside WSA)	345
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	33,609
Inholdings	0
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	0
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	0
Inholdings	0

bounded on the north and west by maintained dirt roads and BLM and private lands, on the south by the Cibola National Forest and on the east by maintained dirt roads and other BLM land. Adding the 345 acres of BLM land contiguous to the WSA to the wilderness recommendation would enhance the overall effective management of the designated wilderness. This land exhibits wilderness characteristics similar to those in the WSA.

Conflicts with other resource uses in this WSA are limited. Grazing use will be allowed to continue. Facility maintenance needs in the WSA are minimal. Proposed livestock developments could be installed, as intended, to better protect the rangeland in a natural condition and not solely to allow for increased numbers of livestock.

The mineral survey conducted by U.S. Geological Survey (USGS) and U.S. Bureau of Mines revealed the area contained a measured sub-economic coal resource of 19.2 million tons and indicated sub-economic resources of 63 million tons at depths of 500 feet or less. The coal resource is sub-economic because of the large amount of overburden and the thin, lenticular character of the coal beds.

The USGS and U.S. Bureau of Mines also found the area has a moderate potential for occurrence of oil and gas. This rating was based on the presence of oil fields about 10 miles to the north and 3 miles to the west of the WSA, oil shows in nearby drill holes, and presence of favorable reservoir and stratigraphic traps. The resource potential is only moderate because the rocks are intruded by volcanic plugs that may have raised the paleotemperature above the limit needed for preservation of oil and gas. Two wells drilled in the WSA to a depth of 400 feet were dry.

The WSA has inferred sub-economic resources of sand, gravel, and sandstone. Because of the abundance of these materials in the region, distance from markets, and lack of unique properties, they have no current economic potential for development. There is a low potential for all undiscovered metals, uranium, and geothermal energy resources.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The imprints of man's work are substantially unnoticeable in the Ignacio Chavez WSA because of dense vegetation, rugged foothills, and steep slopes of features such as Mesa Chivato. Although some imprints of man's activities such as vehicle routes, fences and other intrusions were identified in this WSA, their impact on naturalness is reduced by topographic and vegetation screening. Also, the overall effect of human imprints in the WSA is subdued when considering the small size, unobtrusiveness, and dispersed locations of intrusions. Therefore, the WSA is assessed as being affected primarily by the forces of nature, and is considered to exhibit the wilderness characteristic of naturalness.

Solitude

Mesas, large canyons, volcanic plugs, spectacular escarpments and numerous arroyos, washes, and smaller canyons in Ignacio Chavez WSA provide expansive topographic diversity. This great diversity prevents one particular attraction from drawing large numbers of visitors, which disperses use and enhances solitude. The WSA also contains vegetation that acts as screening between visitors. Overall, the WSA possesses outstanding opportunities for the experience of solitude.

Primitive and Unconfined Recreation

Backpacking, hiking, and camping opportunities within the WSA are considered outstanding. Sightseeing opportunities are plentiful along the rims of Chivato, Cortada, La Azabache, and El Ban-

quito mesas. Sightseeing opportunities related to historical, geological, botanical, and archeological values, big and small game hunting, horseback riding, bird watching, and photography exist throughout the WSA. Tremendous variation in terrain, environmental transition zones, and vegetation provide a wide variety of opportunities for the user to experience high quality primitive and unconfined types of recreation.

Special Features

Visual appeal and diversity of landforms and vegetation are perhaps the most outstanding special features of Ignacio Chavez WSA. The densely vegetated slopes and mesa tops contrast sharply with arid desert lands to the north, east, and west. Environmental transition zones offer excellent scenic and educational values and provide a living laboratory in which to observe natural systems.

Special wildlife features in the Ignacio Chavez WSA include a prairie dog colony that provides an excellent opportunity for wildlife observers and sightseers to watch these interesting creatures. In addition, prairie dog towns are known for their importance as habitat for other wildlife such as burrowing owls and cottontails. Elevated sites of Cerro Parido and Bear's Mouth are important nesting habitat for golden eagles. Merriam's turkey, mule deer, elk, black bear, tassel-eared squirrels, sharp-shinned hawk, jays, and juncos also use the WSA. The Ignacio Chavez WSA is considered critical winter range for deer and elk.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The Ignacio Chavez WSA is within the Colorado Plateau Province. The potential natural vegetation (PNV) consists of 5,424 acres of grama/galleta steppe, 19,040 acres of juniper/pinyon woodland and 8,800 acres of ponderosa pine/Douglas fir forest. Wilderness designation of the Ignacio Chavez WSA would add examples of these three ecosystems to the National Wilderness Preservation System (NWPS). The ecosystem information is summarized in Table 2.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of Albuquerque and Santa Fe, New Mexico. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within a 5-hour drive of these population centers.

Balancing the geographic distribution of wilderness areas

The Ignacio Chavez WSA would contribute to balancing the geographic distribution of areas within the National Wilderness Preservation System. In the region, there are four wilderness areas which total approximately 191,000 acres.

Manageability

The Ignacio Chavez WSA can be effectively managed as wilderness because of the rugged nature, lack of inholdings, rights-of-way, or long-term encumbrances by valid existing rights.

There are 19 post-FLPMA leases for oil and gas in the Ignacio Chavez WSA. These are not expected to be explored or developed before they expire. These leases all are scheduled to expire before the year 2000. There are no mining claims in the WSA.

Although not essential to effective management of the Ignacio Chavez WSA, it would be desirable from a management standpoint that it be managed in conjunction with the Chamisa, La Lena, and Empedrado WSAs as one wilderness. Boca del Oso has been suggested as a name for such a combined area.

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Colorado Plateau Province/				
Grama/Galleta Steppe	8	164,365	13	92,229
Juniper/Pinyon Woodland	11	1,401,745	84	2,124,965
Ponderosa Pine/Douglas Fir Forest	6	125,523	7	10,132
New Mexico				
Colorado Plateau Province				
Grama/Galleta Steppe	6	105,255	13	92,229
Juniper/Pinyon Woodland	4	32,084	13	123,527
Ponderosa Pine/Douglas Fir Forest	5	80,523	2	4,035

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	671,929
Santa Fe	21	1,422,038	23	362,943

Energy and Mineral Resource Values

In 1985 and 1986, the U.S. Geological Survey (USGS) and the U.S. Bureau of Mines conducted a mineral resource appraisal of the Ignacio Chavez WSA. This study included an examination of geologic, geochemical, and geophysical data as well as a review and assessment of local mining activity. The following is a summary of their findings.

The entire WSA has moderate mineral resource potential for oil and gas. This rating was based on the presence of oil fields about 10 miles north and 3 miles west of the WSA, shows of oil in nearby drill holes, and availability of favorable reservoir and stratigraphic traps. The resource potential is only moderate because the rocks are intruded by volcanic plugs that may have raised the paleotemperature above the limit needed for preservation of oil

and gas. Two wells drilled in the study area were dry holes.

The WSA has measured sub-economic coal resources of 19.2 million short tons and indicated sub-economic resources of 63 million short tons at depths of 500 feet or less in the study area. The coal is considered sub-economic due to the thick overburden and the thin, lenticular character of the beds. Western Energy Company evaluated the adjoining area north of the study area, where overburden is much less than in the WSA, but still believed there was no economic value due to the thin, lenticular character of the beds and high ash content of the coal.

The WSA has inferred sub-economic resources of sand, gravel, and sandstone. Because of the abundance of these materials in the region, distance from markets, and lack of unique properties, there is no current economic potential for development. There is a low potential for all undiscovered metals, uranium, and geothermal energy.

Impacts on Resources

A comparative summary of impacts by alternative for the Ignacio Chavez WSA is shown on Table 4. This information is taken from the Final EIS, however, it has been revised to include the updated information from the 1985-1986 USGS/Bureau of Mines mineral survey report. The mineral data indicate there is a moderate, rather than high, oil and gas potential for the entire WSA. Identified coal resources were also found to be sub-economic due to thick overburden and the thin, lenticular character of the coal beds.

Local Social and Economic Considerations

No local social or economic conditions were identified in the New Mexico Statewide Wilderness Study; therefore, no further discussion of this topic will occur in this document.

Summary of WSA-Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Ignacio Chavez area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). Those who favored WSA designation for Ignacio Chavez cited as reasons the area's ecosystem diversity, large size, and apparent natural character. The WSA's proximity to Albuquerque and Santa Fe and avail-ability for use by this large segment of New Mexico's population were cited as important reasons for WSA designation.

Opponents of WSA designation for Ignacio Chavez discussed the effects of excluding the area from possible future mineral exploration and development, the presence of human impacts, and possible limitations on ranch operations.

The Secretary of the Interior in December 1982 issued a legal notice which removed from wilderness study all areas with Federal surface ownership and private mineral estate, and areas of less than 5,000 acres. In Ignacio Chavez WSA, the southern two thirds of the area was dropped from further wilderness review by this decision of the Secretary of the Interior because the acreage contained privately-owned minerals overlain by land administered by the BLM. A court decision issued in April 1985 reversed the Secretarial action resulting in reinstatement of this portion of the WSA into the BLM wilderness review program.

Wilderness Study Comments

During the public comment period on this *New Mexico Wilderness Supplemental Draft Environmental Assessment* (1983), 113 comments on Ignacio Chavez WSA were received, with all but two comments favoring wilderness designation. Supporting reasons included the highly diverse ecosystems, spectacular overlooks, and excellent

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (33,264 Acres Suitable)	No Wilderness (0 Acres Suitable)	Amended Boundary (Proposed Action; 33,609 Acres Suitable)	Amended Boundary (24,765 Acres Suitable)
Impacts On Wilderness Values	The natural character of this forested mountain and opportunities for solitude and primitive recreation opportunities such as hiking, camping, and hunting would be maintained. Raptor, scaled quail, mourning dove, turkey and non-game species nesting sites and critical deer winter range would be protected.	There would be no impacts on wilderness values in the short-term. Over the long-term, up to 8 miles of new roads related to oil and gas exploration, wood cutting, and ORV uses would reduce naturalness and solitude in the southern half of the WSA. Further exploration and potential development of coal and humate resources are not anticipated since coal was not recommended for further leasing consideration in the Rio Puerco Resource Management Plan. USGS/Bureau of Mines concluded that development was unlikely due to thick overburden and thin lenticular character of coal beds.	Impacts would be the same as for the All Wilderness Alternative, except that 345 acres located contiguous to the WSA and recommended for wilderness designation would be subjected to similar impacts.	The impacts would be the same as for the All Wilderness Alternative for the area recommended for wilderness designation. Impacts would be the same as the No Wilderness Alternative for the 8,449 acres excluded from wilderness designation.

Table 4: Comparative Summary of Impacts by Alternative (Continued)

Issue Topics	All Wilderness (33,264 Acres Suitable)	No Wilderness (0 Acres Suitable)	Amended Boundary (Proposed Action; 33,609 Acres Suitable)	Amended Boundary (24,765 Acres Suitable)
Impacts On Oil and Gas, Coal, and Humate Exploration and Development	Exploration and low levels of development on the 33,264 acres in the WSA with moderate potential for oil and gas would be precluded. The currently leased (post-FLPMA) lands would be subject to lease stipulations protecting wilderness. Development of 19.2 million short tons and indicated resources of 63 million tons of coal is not anticipated due to the thick overburden and thin, lenticular character of coal beds.	No impact is anticipated.	Impacts would be the same as for the All Wilderness Alternative, except that 345 acres wilderness addition which has moderate potential for oil and gas would be closed to leasing. Wilderness protection stipulations would be applied to currently leased acreage.	Impacts would be the same as for the All Wilderness Alternative, except that 24,765 acres with moderate potential for oil and gas would be closed to leasing. The 8,499 acres with moderate potential for oil and gas that were excluded would be available for mineral activities. The identified sub-economic coal resources would not be available for development.
Impacts On The Utilization of Wood Products	In the long-term, approximately 644 cords of fuelwood and 6,750 board feet of commercial timber would not be harvested each year.	No impacts on the utilization of wood products in the short or long-term would occur.	Impacts would be the same as the All Wilderness Alternative, except an additional 345 acres would be impacted. Twenty acres excluded from wilderness designation would be unavailable for woodland management because of its proposed use for a motorized vehicle campsite. Impacts would be the same as the No Wilderness Alternative on the acreage containing fuelwood and timber excluded from wilderness designation.	Impacts would be the same as for the All Wilderness Alternative on the area that is designated as wilderness. Impacts would be the same as the No Wilderness Alternative on the 7,402 acres with high potential for fuelwood and timber harvest which are excluded from wilderness designation.

Table 4: Comparative Summary of Impacts by Alternative (Concluded)

Issue Topics	All Wilderness (33,264 Acres Suitable)	No Wilderness (0 Acres Suitable)	Amended Boundary (Proposed Action; 33,609 Acres Suitable)	Amended Boundary (24,765 Acres Suitable)
Impacts On Livestock Grazing Use Levels	Current grazing use levels of approximately 7 head/section/year would continue. Permits would be required for vehicular access to rangeland improvements. Casual vehicle use on 25 miles of routes for inspection and minor repairs would be precluded. Operator cost would increase and inconvenience would occur. New rangeland improvements (1 catchment, 4 troughs, 4 miles of pipeline, 1 wildlife water, 1 well, 2 storage tanks, 2 spring developments and 3/4 miles of fence) will only be allowed if intended for resource protection.	Current grazing use levels of approximately 7 head/section/year would continue. No wilderness limitations would be imposed on maintenance, repair, or construction of improvements listed under the All Wilderness Alternative.	Impacts would be the same as for the All Wilderness Alternative, except that 345 additional acres would be impacted by wilderness restrictions.	Impacts on 24,765 would be the same as for the All Wilderness Alternative, except the area not recommended for wilderness designation would be available for vehicle use on 12 miles of existing routes, 5 earthen reservoirs, 1 spring and other grazing activities would be excluded from wilderness restrictions.
Impacts On Recreational Off-Road Vehicle (ORV) Use	The 25 miles of existing vehicle routes would be closed to back-country riding and exploring, vehicle camping, and hunting.	No impacts on ORV use in the short or long-term would occur.	Impacts would be the same as for the All Wilderness Alternative, except that 345 additional acres outside the WSA would be closed to ORV activities.	Impacts would be the same as for the All Wilderness Alternative, except that 13 miles of existing vehicle routes in the 8,499 acres excluded from wilderness designation would be available for vehicle use.

opportunities for solitude. Several comments mentioned the benefits to wildlife that could accrue through wilderness designation. Many general comments indicated the entire Ignacio Chavez WSA should be examined for wilderness designation regardless of mineral ownership considerations.

Two comments opposing wilderness designation cited the Ignacio Chavez WSA's potential for oil and gas, and impacts on grazing operations as reasons for their opposition.

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985), BLM received 465 comments in the form of letters and testimony at public hearings. Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition, was supported by 340 commenters. Alternative W recommended that the southern part of Ignacio Chavez WSA be added back into the study process and the entire area should be recommended for wilderness designation.

Of the specific comments that were received, many were directed to the entire WSA. Others addressed only the northern portion of the WSA which had been analyzed in the Draft EIS. Most of the comments summarized below address only the northern part of the Ignacio Chavez WSA. Specific comments were received from 25 commenters, 23 of which supported wilderness designation for the acreage. Two commenters opposed wilderness designation. No comments required specific responses or revisions to the affected environment or analysis of environmental impacts.

During the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), specific comments were directed to the Ignacio Chavez and Chamisa WSAs by 27 commenters.

Twenty-five commenters that favored wilderness designation stated as reasons protection of scenery, recreation, ecosystems, wildlife, and cultural resources. Other reasons offered were the WSA meets wilderness criteria and designation would increase ecological diversity in the NWPS and would not have an economic impact. Some commenters felt that wilderness boundaries should be enlarged, more wilderness areas are needed, and non-designation forecloses future wilderness consideration.

Two commenters opposed wilderness designation because BLM data were weak or incorrect and more analysis was needed.

LA LENA
WILDERNESS STUDY AREA

MAP I



RECOMMENDED FOR WILDERNESS

RECOMMENDED FOR NONWILDERNESS (None)

LAND OUTSIDE WSA RECOMMENDED FOR WILD.(None)

SPLIT ESTATE (None)

STATE

PRIVATE (None)

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MILES

La Leña Proposal

NM-010-063A

April 1990

LA LENA
WILDERNESS STUDY AREA

THE STUDY AREA - 10,438 Acres

The La Lena Wilderness Study Area (WSA), NM-010-063A, is located approximately 7 miles north of the village of Guadalupe, New Mexico. The WSA contains 10,438 acres of Bureau of Land Management (BLM) land and 1,280 acres of State land inholdings. (See Table 1 for land status and acreage summary of the study area.) It is bordered on the east side by maintained roads and on the south, north, and west by a combination of maintained roads and property boundaries.

Landforms in this region include mesas, cuestas, rock terraces, retreating escarpments, canyons, and arroyos. There is approximately 400 feet of relief in the La Lena WSA ranging from 6,100 to 6,500 feet. The major drainages found in the WSA are Arroyo Empedrado and La Canada de La Lena. The overall topography of the WSA is formed by arroyos cutting sandstone capped mesas.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. Two alternatives for the La Lena WSA were analyzed in the EIS: an all wilderness alternative and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

10,438	Acres recommended wilderness
0	Acres recommended nonwilderness

The recommendation for the La Lena WSA is to designate the entire area as wilderness (see Map 1). This recommendation is based on the WSA's high quality wilderness values, proximity to the Albuquerque and Santa Fe, New Mexico population centers, and the minimal amount of resource conflicts. This recommendation is considered to be the environmentally preferable alternative as it will result in the least change to the natural environment over the long-term. This recommendation for wilderness will further apply to any additional inholding acreage acquired through purchase or exchange with willing owners. Appendix 1 lists all inholdings and provides additional information on methods and costs of acquisition.

The recommended wilderness consists of broken terrain with steep sided mesas cut by a network of arroyos. Vegetation includes a variety of grasses, cacti, pinyon pine, and juniper trees. The western half of the San Luis Mesa Raptor Area of Critical Environmental Concern (ACEC) is within the WSA. The San Luis Mesa consists of sandstone bluffs which rise 100-200 feet above the valley floor.

Ledges carved in the bluff by wind erosion form excellent nesting sites for birds of prey. Species which have been recorded nesting at San Luis Mesa are golden eagle, prairie falcon, great-horned owl, red-tailed hawk, and raven.

The area provides outstanding opportunities for solitude. Sandstone canyons and meandering arroyos provide the topography necessary to screen users and provide opportunities for solitude. These features offer recreational opportunities for hiking, sightseeing, and camping. Scenic attributes are derived from sandstone mesas and views of contiguous areas which have also been recommended for wilderness designation.

The WSA can be effectively managed as wilderness. The current and projected use of 1,280 acres of State land inholdings is for livestock grazing. In addition, the State of New Mexico has expressed interest in exchanging its land for BLM land elsewhere. There are 12 post-FLPMA oil and gas leases in the WSA that are not expected to be explored or developed before they expire in 1994. There are no rights-of-way or mining claims in the WSA.

Conflicts with other resource uses in this WSA are limited. Grazing use will be allowed to continue. Facility maintenance requirements in the WSA are minimal. The currently proposed livestock developments could be installed because they are intended

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	10,438
Split-Estate (BLM Surface Only)	0
Inholdings	1,280
Total	11,718
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	10,438
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	10,438
Inholdings	1,280
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	0
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	0
Inholdings	0

to better protect the rangeland in a natural condition and not solely to allow for increased numbers of livestock.

The mineral survey conducted by the U.S. Geological Survey (USGS) and U.S. Bureau of Mines revealed that the area, including inholdings, contained a measured resource of 21.1 million tons of coal and indicated resources of 23.4 million tons of coal at depths of 500 feet or less.

The coal in this WSA could be developed if sufficient tonnages are present within the 15 to 1 stripping ratio. Approximately 25 million tons are required to start up a mining operation that would produce over 1 million tons a year for a projected 20-year mine life, and would meet power plant requirements. The mineral report identified measured coal reserves of less than 17 million short tons in the WSA, excluding inholdings. While there is additional coal resources indicated in the WSA, there is no evidence presently available to demonstrate the coal would meet the criteria for economic development.

Due to the limited economic viability of the coal and the high natural values of the area, the 1986 Rio Puerco Resource Mangement Plan decision was not to lease coal in this WSA. The recommendation to designate the WSA wilderness did consider the findings of the USGS and U.S. Bureau of Mines mineral report regarding coal. However, it was determined that the high wilderness values of the WSA should be preserved even if development of the coal resources would be foregone.

The USGS and U.S. Bureau of Mines also found the area has a moderate potential for the occurrence of oil and gas. This rating was based on the presence of nearby oil fields, oil shows in nearby drill holes, and favorable reservoir and stratigraphic traps. The resource potential is only moderate because the rocks are intruded by volcanic plugs that may have raised the temperature of reservoir rocks above the limit for preservation of oil and gas, and because of possible flushing of reservoir formations with ground water.

The WSA has inferred sub-economic resources of sand, gravel, and sandstone. Because of the abundance of these materials in the region, distance from markets, and lack of unique properties, they have no current potential for development. There is a low potential for all metals, uranium, and geothermal energy.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

Although some imprints of man's activities such as vehicle routes, fences, and other intrusions were identified in this WSA, their impact on naturalness is reduced by topographic and vegetation screening. Also, the overall effect of human imprints in the WSA is subdued when considering the small size, unobtrusiveness, and dispersed locations of intrusions. Therefore, the WSA is assessed as being affected primarily by the forces of nature, and is considered to exhibit the wilderness characteristic of naturalness.

Solitude

The abundance of small sandstone canyons and meandering arroyos mingled with steep-sided mesas in the WSA provides the topographic relief necessary to screen a variety of user groups. The opportunity for solitude is well dispersed throughout the WSA and has been rated by the BLM as outstanding.

Primitive and Unconfined Recreation

The La Lena WSA contains opportunities for hiking, backpacking, camping, and photography. Although La Lena does offer recreational opportunities, they were determined to be less than outstanding by BLM during the wilderness inventory.

Special Features

The San Luis Mesa raptor habitat is the predominant special feature located in La Lena WSA. Species recorded nesting in the area include golden eagle, prairie falcon, great horned owl, red-tailed hawk, and raven. Cultural resource sites, including petroglyphs, also have been noted.

Populations of two State-listed endangered plants that have been found in the WSA are Toumeya papyracantha (grama grass cactus) and Astragalus knightii (Knight's milkvetch).

Scenic attributes of the WSA are derived from sandstone mesa vistas. The lack of dense vegetation cover is an aesthetic attribute which permits appreciation of the sculptured landscape that typifies the Southwest. Views outside of the WSA are available from mesa tops along its southern expanse.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The La Lena WSA lies within the Colorado Plateau Province. The potential natural vegetation (PNV) consists of 3,533 acres of grama/galleta steppe, 6,025 acres of juniper/pinyon woodland and 880 acres of Great Basin sagebrush. Wilderness designation of the La Lena WSA would add examples of these three ecosystems to the National Wilderness Preservation System (NWPS). The ecosystem information is summarized in Table 2.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of the Albuquerque and Santa Fe, New Mexico. Table 3 summarizes the number and acreages of designated areas and other BLM study areas within a 5-hour drive of these population centers.

Balancing the geographic distribution of wilderness areas

Designating the La Lena WSA as wilderness would slightly contribute to balancing the geographic distribution of wilderness. In the nearby region, there are four designated wilderness areas totalling approximately 191,000 acres.

Manageability

The WSA can be effectively managed as wilderness. The current and projected use of 1,280 acres of State land inholdings is for livestock grazing. In addition, the State of New Mexico has expressed interest in exchanging its land for BLM land elsewhere. There are 12 post-FLPMA oil and gas leases in the WSA that are not expected to be explored or developed before they expire in 1994. There are no rights-of-way or mining claims in the WSA.

Although not essential to effective management of the La Lena WSA, it would be desirable from a management standpoint that it be managed in conjunction with the Ignacio Chavez, Chamisa, and Empedrado WSAs as one wilderness. Boca del Oso has been suggested as a name for this wilderness complex.

Energy and Mineral Resource Values

In 1985, 1987, and 1988, the USGS and U.S. Bureau of Mines conducted a mineral resource appraisal of the La Lena WSA. This study included an examination of geological, geochemical, and geophysical data as well as a review and assessment of local mining activity.

The mineral survey revealed the area, including inholdings, contained a measured coal resource of 21.1 million tons and indicated resources of 23.4 million tons at depths of 500 feet or less. Coal in the

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Colorado Plateau Province				
Grama-Galleta Steppe	8	164,365	13	94,120
Juniper-Pinyon Woodland	11	1,401,745	84	2,133,567
Great Basin Sagebrush	2	95,875	4	52,411
New Mexico				
Colorado Plateau Province				
Grama-Galleta Steppe	6	105,255	13	94,120
Juniper-Pinyon Woodland	4	33,084	13	136,542
Great Basin Sagebrush	0	0	0	0

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	694,755
Santa Fe	21	1,422,038	23	385,769

study area averages less than 5 feet thick and is considered by the USGS and U.S. Bureau of Mines as too thin to be mined by underground methods. In the San Juan Basin, criteria for economically surface-minable coal as of 1987 are as follows: coal beds, including one bed at least 2.3 feet thick, must be covered by at least 20 feet of overburden, and the maximum amount of overburden cannot exceed a 15 to 1 stripping ratio (15 feet overburden plus interburden for every foot of coal). These criteria are being used by the BLM to evaluate tracts of land for lease sale and are based on coal industry mining methods and practices in the San Juan Basin. Most of the coal in the study area is covered by overburden exceeding the 15 to 1 stripping ratio. Based on this data, the 1986 Rio Puerco Resource Management Plan found the area to lack coal development potential and was unacceptable for further coal leasing considerations.

The coal in this WSA could be developed if sufficient tonnages are present within the 15 to 1 stripping

ratio. Approximately 25 million tons are required to start up a mining operation that would produce over 1 million tons a year for a projected 20-year mine life, and would meet power plant requirements. The mineral report identified measured coal reserves of less than 17 million short tons in the WSA, excluding inholdings. While there is additional coal resources indicated in the WSA, there is no evidence presently available to demonstrate the coal would meet the cirteria for economic development. Additional drilling would be required to determine the exact thickness and lateral continuity of the coal beds and overburden thickness.

The La Lena WSA was rated as having a moderate energy resource potential for oil and gas. This rating was based on the presence of nearby oil fields, oil shows in nearby drill holes, and favorable reservoir and stratigraphic traps beneath the study area. The resource potential is only moderate because the rocks are intruded by volcanic plugs that may have raised the temperature above the limit needed for preservation of oil and gas, and because of possible flushing of reservoir rocks by ground water. A total of 36 holes have been drilled for oil and gas in and within 2 1/2 miles of the WSA since 1923. Oil shows were found in two nearby drill holes; however, two holes drilled within the study area were dry.

The WSA has inferred sub-economic resources of sand, gravel, and sandstone. Because of the abundance of these materials in the region, distance from markets, and lack of unique properties, they have no current potential for development. There is a low potential for all metals, uranium, and geothermal energy.

Impacts on Resources

A comparative summary of impacts by alternative for the La Lena WSA is shown on Table 4. This information is taken from the Final EIS, however, it has been revised to include data from the 1985, 1987, and 1988 USGS and U.S. Bureau of Mines mineral survey report. The mineral data indicate there are no areas in the WSA with high oil and gas potential, the entire WSA is classified as having a moderate potential for the occurrence of oil and gas, and identified coal resources.

Local Social and Economic Considerations

No local social or economic considerations were identified in the New Mexico Statewide Wilderness Study; therefore, no further discussion of this topic will occur in this document.

Summary of WSA-Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the La Lena area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). During the wilderness inventory, proponents of WSA status for the La Lena area emphasized its natural character and opportunities for solitude and primitive and unconfined recreation as reasons it should ultimately be designated as wilderness.

Opponents of WSA status highlighted problems with the land ownership configuration as well as the presence of human impacts and possible limitations on ranch operations.

Wilderness Study Comments

During the public comment period on the *Albuquerque District Wilderness Draft Environmental Assessment* (EA) (1983), 30 public comments were received on the La Lena WSA. Thirteen of these expressed opposition to wilderness designation, citing lack of naturalness and the potential for oil and gas. One comment cited high potential for coal, and moderate potential for uranium, thorium, gypsum, oil and gas, and clay.

Seventeen comments favored wilderness designation, stating that the La Lena WSA contains excellent wilderness characteristics and would be even better

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (Proposed Action; 10,438 Acres Suitable)	No Wilderness (0 Acres Suitable)
Impacts on Wilderness Values	The natural character of sandstone mesas and canyons and opportunities for solitude would be maintained. Raptor, scaled quail, and non-game species nesting habitat would be protected. The current undisturbed condition of cultural resources would be maintained.	In the short-term, there would be no impacts on wilderness values. In the long-term, mineral exploration and development and ORV activity would diminish quality of naturalness throughout the WSA. Road development would result in a loss of opportunities for solitude.
Impacts on Oil and Gas Exploration and Development	The 10,438 acres with moderate potential for oil and gas would be closed to exploration and development when existing leases expire. The 5,320 acres currently leased is subject to lease stipulations pro-tecting wilderness values. Between 1 and 4 producing oil and gas wells would be foregone. Development of 16.5 million measured tons of coal and indicated resources of 23.4 million tons of coal would be foregone.	No impacts.
Impacts on Livestock Grazing Use Levels	Current grazing use levels of approximately 7 head/section/year would continue. Permits would be required for vehicle access to improvements which would increase operator costs and inconvenience. The WSA contains 10 earthen reservoirs, 8 miles of fence, 3.7 miles of pipeline and 3 troughs under wilderness limitations. Casual vehicle use on 8 miles of routes for inspections and minor repairs would be precluded. A new rangeland improvement, 1 mile of fence, would be allowable for resource protection purposes only.	No impacts on current grazing use levels of approximately 7 head/section/year. No impacts on use of 8 miles of existing routes. No impacts on operator costs or on management style.
Impacts on Recreational Off-Road Vehicle (ORV) Use	The existing 8 miles of vehicular routes would be closed to backcountry exploring and riding, vehicle camping, and hunting using motorized vehicles.	No impacts on ORV use in the short or long-term.

managed for wilderness by being combined with the Empedrado WSA. Some individuals also felt that an Area of Critical Environmental Concern designation would not guarantee the permanent protection for the WSA's values that wilderness designation would provide. Some expressed the opinion that the La Lena WSA's land configuration was a poor argument for recommending the WSA not be designated wilderness, and that the current land pattern is not a limiting factor to effective management.

Several comments also questioned how effectively the San Luis Mesa raptor area could be protected without wilderness designation. One comment pointed out inconsistencies among Maps 3 and 5 and the text of the Draft EA; these inconsistencies were corrected in the Final EA.

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985), BLM received 465 comments in the form of letters and testimony at public hearings. Support came from 340 commenters for "Alternative W," a 1.3 million-acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition. Alternative W included the La Lena WSA and recommended wilderness designation for the entire WSA. Specific comments were directed to the La Lena WSA by 17 commenters, all supporting wilderness designation for the La Lena WSA. For this WSA, none of these comments required specific responses or revisions to the affected environment or analysis of environmental impacts.

During the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), specific comments were directed to the La Lena WSA by 28 commenters. Twenty-four commenters that supported wilderness designation cited reasons such as the need for more wilderness, that non-designation would foreclose future consideration for wilderness, and the area is close to population centers where needs exist for wilderness. Other reasons cited were the protection provided for recreation, scenic, cultural, wildlife and other resources.

The New Mexico BLM Wilderness Coalition supports designating the entire WSA as well as expanding the boundaries to the east to include a 10,880-acre area referred to as the San Luis area. The area would include additional BLM, State, and private lands. The coalition also expressed support of the Boca del Oso Wilderness Complex consisting of the La Lena, Empedrado, Chamisa and Ignacio Chavez WSAs.

Four commenters who opposed wilderness designation felt that such actions would adversely impact the mineral industry and livestock operations. Other reasons cited were the area's low wilderness values and presence of too many intrusions.

Appendix 1: Estimated Costs of Acquisition of Non-Federal Holdings Within the La Lena WSA[1]

Legal Description (Prior to any Subdivision)	Total Acres	Number of Owners	Type of Ownership by Estate (BLM/ State/ Private) Surface Estate	Subsurface Estate	Proposed for Acquisition (Yes/No)	Preferred Method of Acquisition (Purchase/ Exchange/ Donation)	Estimated Costs of Acquisition[2] Land Costs	Processing Costs
Parcel #1, Sec. 36, T. 17N, R. 4W	640	1	State	State	Yes	Exchange	N/A	$6,400
Parcel #2, Sec. 32, T. 17N, R. 3W	640	1	State	State	Yes	Exchange	N/A	$6,400

[1] The estimated costs listed in this appendix in no way represent a formal appraised value of the land or mineral estate, but are rough estimates based on sales or exchanges of lands or mineral estates with similar characteristics to those included in the WSA. The estimates are for purposes of establishing a range of potential costs to the government of acquiring non-Federal holdings and in no way represent an offer to purchase or exchange at the cost estimate included in this appendix.

[2] Where exchange is the proposed acquisition method, only administrative costs of processing the exchange are shown. Processing costs are all miscellaneous expenses other than land costs. These would include work month costs, appraisals, title work, escrow costs, etc. Where direct purchase is proposed, an estimate of both the land costs and the processing costs is provided.

MANZANO
WILDERNESS STUDY AREA

MAP I



RECOMMENDED FOR WILDERNESS

RECOMMENDED FOR NONWILDERNESS (None)

LAND OUTSIDE WSA RECOMMENDED FOR WILD. (None)

SPLIT ESTATE (None)

STATE (None)

PRIVATE (None)

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MILES

Manzano Proposal

NM-010-092

April 1990

MANZANO
WILDERNESS STUDY AREA

THE STUDY AREA – 881 Acres

The Manzano Wilderness Study Area (WSA), NM-010-092, is approximately 16 miles east-southeast of Los Lunas, New Mexico in Torrance County. The WSA is contiguous to and bordered on two sides by the designated U.S. Forest Service (USFS) Manzano Mountain Wilderness. The WSA contains 881 acres of Bureau of Land Management (BLM) land. (See Table 1 for land status and acreage summary of the study area.) The Manzano WSA is adjacent to private land and other BLM-administered land on the west, and to private land on the north.

The WSA is situated on the western side of Bosque Peak in the Manzano Mountains and contains the mouth of Garcia Canyon. The area rises from 6,200 feet at its lowest point on the western boundary to 7,400 feet at its highest point on the eastern boundary. Vegetation consists of pinyon pine and juniper trees with some yucca and short grasses established on the western edges. The area is moderately rocky with sandy loam soils typical of those found within an alluvial fan. The WSA provides winter habitat for Rocky Mountain bighorn sheep.

The WSA was studied under Section 202 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. Two alternatives for the Manzano WSA were analyzed in the EIS: an all wilderness alternative and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

881	Acres recommended wilderness
0	Acres recommended nonwilderness

The recommendation for the Manzano WSA is to designate the entire area as wilderness and to add it to the Cibola National Forest's Manzano Mountain Wilderness (see Map 1). The WSA represents a natural extension to the existing 36,785-acre Manzano Mountain Wilderness, and management by one agency will reduce overall administrative costs. This is also considered to be the environmentally preferable alternative as it will result in the least change to the natural environment over the long-term.

The WSA is in a natural condition and wilderness designation will enhance management of the contiguous Manzano Mountain Wilderness. This foothill region is considered by the New Mexico Department of Game and Fish (NMDGF) as critical deer winter range and an important component of the bighorn sheep habitat.

The Manzano WSA could be effectively managed as wilderness over the long-term. The transferring of this WSA to the USFS will promote efficient management of the entire wilderness area.

The conflicts with other resource uses in this WSA are limited. Grazing use will be allowed to continue.

Facility maintenance requirements are minimal. There are no currently proposed livestock developments that would be foregone. The area has been rated by the U.S. Geological Survey (USGS) and the U.S. Bureau of Mines as having a low energy and mineral resource potential.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

Existing imprints of man evident in the Manzano WSA include a barbed wire fence on the boundary between the WSA and the USFS Manzano Mountain Wilderness, 6/10 of a mile of buried pipeline, approximately 1/3-mile of vehicle way, a 2 foot by 6 foot concrete watering trough, 1/2-mile of cross-fence, and a modest spring development located in a narrow canyon.

All imprints are substantially unnoticeable in the WSA as a whole, and thus the Manzano WSA is assessed as exhibiting the wilderness characteristic of naturalness.

Solitude

Despite its small size, this WSA possesses outstanding opportunities for a visitor to experience solitude. The USFS Manzano Mountain Wilderness is contiguous to the WSA on the east and south,

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	881
Split-Estate (BLM Surface Only)	0
Inholdings	0
Total	881
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	881
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	881
Inholdings	0
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	0
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	0
Inholdings	0

which significantly contributes to the WSA's outstanding opportunities for solitude. Solitude is further enhanced by the remoteness of the WSA and the lack of human activity in the general area.

Primitive and Unconfined Recreation

The Manzano WSA provides outstanding opportunities to hunt mule deer, quail, dove, and rabbit. In addition, the WSA offers outstanding opportu-nities to observe varied and abundant wildlife species in a natural setting.

Special Features

The WSA is designated as critical mule deer winter range by the NMDGF 1978 Comprehensive Plan and is within the range of the Manzano Mountains bighorn sheep herd. Golden eagles and hawks may be occasionally seen in the area and a great horned owl was observed at a nest site located in the WSA.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The Manzano WSA is within the Colorado Plateau Province. The potential natural vegetation (PNV) is 881 acres of grama/galleta steppe. Wilderness designation of the Manzano WSA would increase the acreage of this ecosystem represented in the National Wilderness Preservation System (NWPS). The ecosystem information is summarized in Table 2.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of Santa Fe, Albuquerque and Las Cruces, New Mexico. Table 3 summarizes the number and acreages of designated areas and other BLM study areas within a 5-hour drive of these population centers.

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Colorado Plateau Province				
Grama/Galleta Steppe	8	164,365	13	96,772
New Mexico				
Colorado Plateau Province				
Grama/Galleta Steppe	6	105,255	13	96,772

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	704,312
Las Cruces	14	1,192,386	35	781,753
Santa Fe	21	1,423,038	23	395,326

Balancing geographic distribution of wilderness areas

Designating the Manzano WSA as wilderness would not contribute to balancing the geographic distribution of wilderness as this small BLM area is recommended to be added to the existing 36,785-acre USFS-administered Manzano Mountain Wilderness.

Manageability

The Manzano WSA could be effectively managed as wilderness over the long-term. There are no inholdings, valid existing rights, mineral leases, claims, or rights-of-way in the WSA that would interfere with the BLM's ability to effectively manage the area as wilderness.

Recommendations have been made throughout the wilderness review process that the Manzano WSA be made a part of the existing USFS Manzano Mountain Wilderness. The transfer of administration of this WSA to the USFS would promote efficient management of the entire wilderness area.

Energy and Mineral Resource Values

In 1980 and 1981, a mineral survey was conducted by the U.S. Bureau of Mines as part of a joint effort with the USGS on the contiguous Manzano Mountain Wilderness. Data from this study supplemented investigations conducted by the U.S. Bureau of Mines and USGS in 1987 of the Manzano WSA. Based on geological studies, geochemical analyses, and the absence of mineralization, the WSA was determined to have a low mineral resource potential for metals. The potential for the occurrence of oil and gas is also low because of unfavorable host rocks and structures.

Impacts on Resources

A comparative summary of impacts by alternative for the Manzano WSA is shown on Table 4. This information is taken from the Final EIS, but was modified as a result of more current mineral potential information. The initial BLM assessment for oil and gas potential for this WSA was moderate. However, the more recent assessment conducted by the U.S. Bureau of Mines and USGS indicated that the area has a low potential for fluid minerals. Table 4 reflects the revised mineral potential information.

Local Social and Economic Considerations

No local social or economic considerations were identified in the New Mexico Statewide Wilderness Study; therefore, no further discussion of this topic will occur in this document.

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (Proposed Action; 881 Acres Suitable)	No Wilderness (0 Acres Suitable)
Impacts on Wilderness Values	Wilderness protection would maintain the natural character of this area and outstanding opportunities for solitude, hiking, hunting, and photography.	Opportunities for primitive recreation and solitude would be reduced as a result of mineral activities on 10-15 acres in the WSA.
Impacts on Oil and Gas Exploration	The 881 acres in the WSA with low potential for oil and gas would be closed to exploration. While no development is anticipated, exploration could be foregone.	No impacts.
Impacts on Livestock Grazing Use Levels	No impacts on current grazing use levels of approximately 7 head per section per year. Permits would be required for vehicle access to rangeland improvements, resulting in an inconvenience to the permittee.	No impacts.

Summary of WSA-Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Manzano area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). The BLM received 20 letters during the initial inventory phase of wilderness review supporting intensive inventory for this area. These respondents felt that the Manzano area would be a logical extension of the existing USFS Manzano Mountain Wilderness, and cited the BLM's own wilderness inventory procedures which require inventory of all public land contiguous with existing wilderness. Opponents to pursuing wilderness review said that it could not be managed as wilderness because of its small size.

BLM found that the Manzano area had been overlooked in the initial inventory and that it did merit intensive inventory. The intensive inventory was done in early 1980, and the area recommended for designation as a WSA. During the public comment period on intensive inventory recommendations, BLM received nine letters specific to the Manzano area, and numerous form letters and petitions addressing inventory units in general. All but one favored WSA designation. No supporting reasons were offered for the sole letter in opposition. Those favoring WSA designation cited its wilderness characteristics. In 1980, the Manzano area was designated as a WSA.

The Secretary of Interior in December 1982 issued a legal notice which removed from wilderness study all areas with Federal surface ownership and private mineral estate, and areas of less than 5,000 acres.

The Manzano WSA was affected by this action since it is 881 acres in size. A court decision issued in April 1985 reversed the Secretarial action, resulting in the reinstatement of Manzano WSA into the BLM wilderness review program.

Open houses were held in Grants and Albuquerque in February 1986 to reintroduce this area, among others, to the public and to serve as scoping for New Mexico Statewide Wilderness Study.

Wilderness Study Comments

During the public review period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), specific comments were directed to the Manzano WSA by 13 commenters.

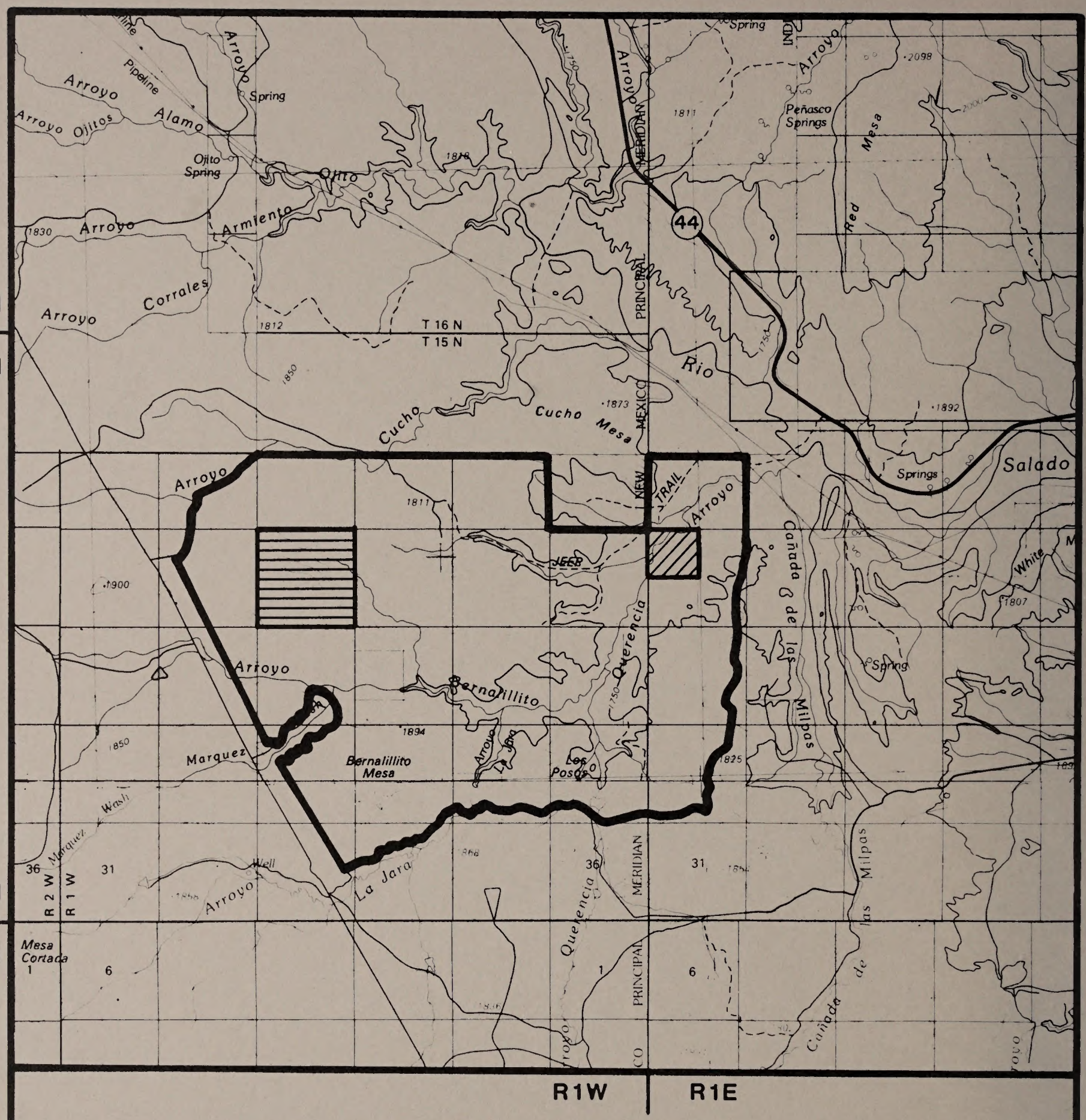
The Cibola National Forest has indicated an interest in the transfer of jurisdiction of this acreage to the USFS. USFS feels that most of it would qualify for wilderness designation and that inclusion of this parcel into the Manzano Wilderness would enhance manageability. In addition, part of the 881 acres would provide a better trailhead for Trail 171 and put the entire trail on USFS land.

Commenters in favor of designation stated that designation would protect ecosystems, wildlife, recreation, scenery, and cultural resources. One commenter suggested that a larger area be designated wilderness.

Commenters that opposed wilderness stated that designation would impact the livestock grazing and mining industries, have adverse effects on the economy, and that easements or new road construction would be needed.

OJITO
WILDERNESS STUDY AREA

MAP I



RECOMMENDED FOR WILDERNESS

RECOMMENDED FOR NONWILDERNESS (None)

LAND OUTSIDE WSA RECOMMENDED FOR WILD. (None)

SPLIT ESTATE (None)

STATE

PRIVATE

N

0 1 2

MILES

Ojito Proposal

NM-010-024

April 1990

OJITO
WILDERNESS STUDY AREA

THE STUDY AREA - 10,903 Acres

The Ojito Wilderness Study Area (WSA), NM-010-024, is located approximately 5 miles southwest of San Ysidro, New Mexico. The WSA contains 10,903 acres of Bureau of Land Management (BLM) land, with 640 acres of State land and approximately 160 acres of private land included as inholdings. (See Table 1 for land status and acreage summary of the study area.) The WSA is delineated on the north by property boundaries, on the south by a combination of a gas pipeline right-of-way (ROW) and a maintained road, on the west by a power line ROW, and on the east by a combination of a maintained road and a ridgeline.

Landforms in this region include mesas, cuestas, rock terraces, retreating escarpments, canyons, arroyos, and badlands. The overall landscape of the WSA is formed by arroyos cutting sandstone-capped mesas. Bands of shales, sandstones, and limestone highlight the canyon walls. Extending westward are rock terraces dissected by rocky canyons that extend to expansive plateaus and mesa tops. Escarpments step back from the uplands and are honeycombed with pockets of impressive scenic features. Small areas contain pockets of sculptured badland formations of sandstone in many shapes and sizes. Other sheltered pockets contain residual ponderosa pine populations that are rare in this environment. Still other pockets reveal a variety of features including petrified wood and multi-colored rock layers.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988.

Two alternatives for the Ojito WSA were analyzed in the EIS: an all wilderness alternative and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

10,903	Acres recommended wilderness
0	Acres recommended nonwilderness

The recommendation for the Ojito WSA is to designate the entire area as wilderness (see Map 1). This recommendation is based on the WSA's high quality wilderness values, close proximity to the Albuquerque and Santa Fe population centers, cultural and paleontological special features, and the lack of resource conflicts. This is also considered to be the environmentally preferable alternative as it will result in the least change to the natural environment over the long-term. This recommendation for wilderness will further apply to any additional inholding acreage acquired through purchase or exchange with willing owners. Appendix 1 lists all inholdings and provides additional information on the estimated methods and costs of acquisition.

The natural qualities of the area are highlighted by multi-colored rock formations, sculptured badlands, and expansive plateaus and mesa tops. The scenic values of these diverse landforms and the close proximity to the population centers of Albuquerque and Santa Fe contribute to the area's outstanding opportunities for solitude and primitive and unconfined recreation. A visitor may experience solitude in the Ojito WSA by wandering through the area's numerous steep-sided canyons, sandy arroyos, and rough, rocky terrain. This rugged topographic screening enhances opportunities for solitude by

protecting visitors from the sights and sounds of others. The varied landscape also provides outstanding photographic and sightseeing opportunities.

Although wildlife numbers are not high, a diversity of species is present. The bluffs and mesa edges in the WSA provide excellent nesting habitat for raptors, swallows, and swifts. Scaled quail and mourning doves inhabit the brushy draws and rocky wooded hillsides. Mule deer occupy the juniper and pinyon pine woodlands and a small band of antelope range into the northwest corner of the WSA. Other wildlife common to the area include coyote, fox, rabbit, horned lark, and raven. Both bobcats and mountain lions have also been sighted in the area. Two plant species on the New Mexico State endangered species list occur in the WSA; grama grass cactus (Toumeya papyracantha) and Knight's milkvetch (Astragalus knightii).

The cultural resource density within this WSA is projected to be particularly high and includes Archaic, other prehistoric, and historic sites. Archaic sites range from small lithic scatters to large scatters with ground stone, cists, ash and burned rocks. The prehistoric sites include small pueblos of 30 or more rooms. The historic sites are related to Spanish settlement prior to the 18th century.

Paleontological sites have also been found. The fossil resources include petrified wood, plant fragments, mollusks, and dinosaur bones. Of particular interest, dinosaur bones representing a group not

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	10,903
Split-Estate (BLM Surface Only)	0
Inholdings	800
Total	11,703
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	10,903
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	10,903
Inholdings	800
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	0
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	0
Inholdings	0

previously known in New Mexico are being excavated from the WSA.

The area can be managed to preserve the quality of the wilderness characteristics. The area contains no mining claims and there are only three post-FLPMA oil and gas leases. Based on the low potential for the occurrence of oil and gas resources in the WSA, these leases are not expected to be explored or developed before they expire in 1995. There are no ROWs in the WSA. Vehicle ways form portions of the eastern, southern, and western boundaries. Non-Federal property forms the northern boundary.

Conflicts with other resource uses in this WSA are limited. Grazing use will be allowed to continue. Facility maintenance requirements in the WSA are minimal. There are no currently proposed livestock developments that would be foregone.

The mineral survey conducted by the U.S. Geological Survey (USGS) and U.S. Bureau of Mines revealed the area contained an inferred sub-economic resource of 6 million tons of gypsum. The gypsum resource is sub-economic because large amounts of overburden would have to be removed. In addition, large reserves of gypsum are available a few miles east of the WSA and elsewhere in the United States. The USGS and U.S. Bureau of Mines also found the area has a moderate potential for the occurrence of uranium but determined the grade to be far below that of economic deposits. The Ojito WSA was found to have a low mineral resource potential for all metals, zeolite minerals, sand and gravel, and a low energy resource potential for oil, gas, coal, and geothermal resources.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

As a whole, the WSA has been affected primarily by the forces of nature, and is thus assessed as exhibiting the wilderness characteristic of naturalness. Considering the Ojito WSA's close proximity to the populations of Albuquerque and Santa Fe, its natural condition is particularly outstanding. Although some imprints of man's activities such as vehicle ways, fences and other intrusions were identified in this WSA, their impact on naturalness is reduced by topographic and vegetation screening. Also, the overall effect of human imprints in the WSA is subdued when considering the small size, unobtrusiveness, and dispersed locations of intrusions.

Solitude

A visitor may experience solitude by wandering through the WSA's numerous steep-sided canyons, sandy arroyos, and rough, rocky terrain. This rugged topographic screening enhances opportunities for solitude by protecting users from the sights and sounds of others. The Ojito WSA possesses outstanding opportunities for a person to experience solitude.

Primitive and Unconfined Recreation

The Ojito WSA contains opportunities for a wide diversity of outstanding primitive recreation activities. The varied landscape provides outstanding photographic and sightseeing potential. Highlights include wide arroyos and canyons, colorful rocky bluffs, flat highlands, and a view of distant mountain ranges including the Sandia Mountains east of Albuquerque, New Mexico. Sightseeing opportunities associated with historic and prehistoric sites in the WSA also exist. Hikers, campers, backpackers, and rockhounds are attracted by the variety of terrain offered throughout the WSA. Opportunities for bird hunting in the Ojito WSA are good.

Special Features

The Ojito WSA has a particularly high density and wide variety of special features. Although wildlife is not abundant, a diversity of species is present. The bluffs and mesa edges in the WSA

provide excellent nesting habitat for raptors, swallows, and swifts. Scaled quail and mourning doves inhabit the brushy draws and rocky wooded hillsides. Mule deer occupy the juniper and pinyon pine woodlands, and a small band of antelope range into the northwest corner of the WSA. Other wildlife common to the area include coyote, fox, rabbit, horned lark, and raven. Both bobcats and mountain lions have also been sighted in the area. Two rare plant species on the New Mexico State endangered species list occur in the WSA. The first, grama grass cactus (Toumeya papyracantha), is found growing in clumps of blue grama and black grama in swales, and is a candidate for formal listing by the Federal government as threatened. The other is Knight's milkvetch (Astragalus knightii).

The cultural resource density within this WSA is projected to be particularly high and includes Archaic, other prehistoric, and historic sites. The Archaic sites range from small to large lithic scatters with ground stone, cists, ash, and burned rocks. The prehistoric sites include small pueblos of 30 or more rooms. The historic sites are related to Spanish settlement prior to the 18th century.

Paleontological sites have also been found, but their full significance has not been determined as yet. One site is currently being excavated, but analysis has not been completed. However, early indications are that the paleontological resources of the Ojito WSA may be of National or international significance. Further study is taking place.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The Ojito WSA lies within the Colorado Plateau Province. The potential natural vegetation (PNV) consists of 5,147 acres of grama/galleta steppe and 5,756 acres of juniper/pinyon woodland. Wilderness designation of the Ojito WSA would add examples of these two ecosystems to the National Wilderness Preservation System (NWPS). This ecosystem information is summarized in Table 2.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of Albuquerque and Santa Fe, New Mexico. Table 3 summarizes the number and acreages of designated areas and other BLM study areas within a 5-hour drive of these population centers.

Balancing geographic distribution of wilderness areas

Designating the Ojito WSA as wilderness would contribute to balancing the geographic distribution of wilderness. In the nearby region, there are four designated wilderness areas totalling approximately 191,000 acres. The BLM administered Bisti, De-na-zin, Cebolla, and West Malpais Wilderness Areas are the only designated areas in the New Mexico portion of the Colorado Plateau Province.

Manageability

The Ojito WSA can be effectively managed to maintain its wilderness values over the long-term. The area contains no mining claims and there are only three post-FLPMA oil and gas leases. Based on the low potential for the occurrence of oil and gas resources in the WSA, these leases are not expected to be explored or developed before they expire in 1995. There are no ROWs in the WSA.

Reasonable access must be guaranteed to State and private inholdings. The current and projected use of the 640 acres of State land and 160 acres of private land is livestock grazing. However, the State of New Mexico has expressed an interest in exchanging its inholding (640 acres in T. 15 N., R. 1 W., Section 16) for BLM land located outside the wilderness boundary. Acquisition of both parcels of inholdings would enhance manageability by consolidating the ownership. Appendix 1 lists the

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Colorado Plateau Province				
Grama/Galleta Steppe	8	164,365	13	92,506
Juniper/Pinyon Woodland	11	1,401,745	84	2,138,249
New Mexico				
Colorado Plateau Province				
Grama/Galleta Steppe	6	105,255	13	92,506
Juniper/Pinyon Woodland	4	33,084	13	136,811

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	694,290
Santa Fe	21	1,422,038	23	385,304

inholdings and provides additional information on methods and costs of acquisition.

Energy and Mineral Resource Values

In 1984 and 1985, USGS and the U.S. Bureau of Mines conducted investigations to assess the mineral resource potential and appraise the identified mineral resources of the Ojito WSA. These investigations revealed that the Ojito WSA contained an inferred sub-economic resource of 6 million tons of gypsum. The gypsum resource is sub-economic because large amounts of overburden would have to be removed to reach deposits. In addition, large reserves of gypsum available a few miles east of the WSA and elsewhere in the United States are sufficient to meet current or projected demands. The area has a moderate potential for the occurrence of uranium, but the grade was determined by USGS and U.S. Bureau of Mines to be far below that of economic deposits. The WSA was also found to have a low mineral resource potential

for all metals, zeolite minerals, sand and gravel, and a low energy resource potential for oil, gas, coal, and geothermal resources.

Impacts on Resources

A comparative summary of impacts by alternative for the Ojito WSA is shown on Table 4. The information was taken from the Final EIS, however, it has been revised to include the updated information from the 1987 USGS and U.S. Bureau of Mines mineral survey report. The mineral data indicate the WSA has a low, rather than moderate, potential for the occurrence of oil and gas resources.

Local Social and Economic Considerations

No local social or economic considerations were identified in the New Mexico Statewide Wilderness Study; therefore, no further discussion of this topic will occur in this document.

Summary of WSA-Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Ojito area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). Considerable interest in the management status of the Ojito WSA has been expressed by the public. The WSA's close proximity to Albuquerque and Santa Fe and the resultant ease of access for such a large percentage of New Mexico's population has been pointed out. The Ojito WSA's wide variety of special features, natural character, and opportunities for solitude and primitive and unconfined recreation were also noted.

Opponents of wilderness designation for the Ojito WSA discussed the effect of excluding it from possible future mineral exploration and development, the presence of human impacts, and possible limitations on ranch operations.

Wilderness Study Comments

During the public comment period on the *Albuquerque District Wilderness Draft Environmental Assessment* (1983), a total of 26 public comments were received on the Ojito WSA. Three comments expressed opposition to wilderness designation. They cited high favorability for uranium, and moderate potential for oil, copper, silver, molybdenum, and gold. One commenter felt the Ojito WSA contained too many man-made intrusions, while another expressed the opinion that the Ojito WSA's special values could be managed effectively without wilderness designation.

The majority of the comments, 23 personal letters, favored wilderness designation. The availability of quality wilderness characteristics (particularly solitude and special features) so close to Albuquerque was repeatedly emphasized. The Ojito WSA's value for its "stark beauty" and sanctuary for raptors was mentioned. One comment from a geologist expressed the opinion that mineral development potential was minimal within the Ojito WSA, with similar opportunities existing throughout the region.

Miscellaneous comments included a statement that one individual had taken more than 100 people to the Ojito WSA, each of whom was prepared to "speak up" for the Ojito WSA. The State of New Mexico anticipated no conflicts and encouraged immediate discussion of a land exchange. The Ojito WSA was noted as a high priority with the New Mexico Wilderness Study Committee.

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985), BLM received 465 comments in the form of letters and testimony at public hearings. Support was received from 340 commenters for "Alternative W," a 1.3 million-acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition. Alternative W included the Ojito WSA and recommended wilderness designation for the entire WSA. Specific comments were directed to the Ojito WSA by 18 commenters, of

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (Proposed Action; 10,903 Acres Suitable)	No Wilderness (0 Acres Suitable)
Impacts on Wilderness Values	The natural character of this mesa and badland environment would be maintained. Opportunities for solitude, hiking, camping, and photography would also be maintained. Wilderness designation would also protect soils and vegetation susceptible to erosion, protect 2 rare plant species, and maintain the current undisturbed condition of the abundant and diverse cultural resources and paleontological sites. Habitat supporting migrating waterfowl, mule deer, antelope, gray fox, bobcat, mountain lion, golden eagle, and red-tailed hawk would be maintained in a natural condition.	In the short-term, there would be no impacts on wilderness values. In the long-term, anticipated mineral and increased off-road vehicle (ORV) activities would result in an expanded road network and increased motor vehicle access. The WSA would, therefore, be dissected into 3 or 4 areas less than 5,000 acres in size. Naturalness would be reduced 20-30 percent. Solitude opportunities would be lost.
Impacts to Uranium, Oil and Gas, and Geothermal Exploration and Development	The 7,603 acres with moderate potential for uranium would be closed to exploration and development. USGS and U.S.Bureau of Mines concluded that the grade of uranium was far below that of economic deposits. The remaining 3,300 acres in the Las Milpas natural gas storage area are unavailable for mineral location as long as the storage area is active and, therefore, are unaffected by designation. USGS and U.S. Bureau of Mines lowered the BLM's moderate potential rating to low potential for oil and gas and geothermal resources in the WSA. Therefore, no impacts on energy production is expected.	No impacts.
Impacts on Recreational ORV Use	The existing 6 miles of vehicle ways would be closed to backcountry riding, vehicular camping, hunting, and motocross racing. This would result in less than 1 percent of the Resource Area being closed to this type of use.	There would be no impacts on recreational ORV use in the short- or long-term.

Table 4: Comparative Summary of Impacts by Alternative (Concluded)

Issue Topics	All Wilderness (Proposed Action; 10,903 Acres Suitable)	No Wilderness (0 Acres Suitable)
Impacts on Livestock Grazing Use Levels	There would be no impacts on current grazing use levels of approximately 9 head/section/year. Permits would be required for vehicle access to improvements. The WSA contains 15 miles of fence, 8 earthen reservoirs, and 1 catchment. Casual vehicle use on 6 miles of ways for inspections and minor repairs would be precluded. Operator costs and inconvenience would increase as a result of wilderness limitations. New rangeland improvements (5 1/2 miles of pipeline, 1 earthen reservoir, 5 troughs) would be allowed only for resource protection purposes.	There would be no impacts on current grazing use levels of approximately 9 head/section/year nor on operator costs or on management style.

which 17 supported wilderness designation for Ojito. One commenter expressed opposition to wilderness designation. For this WSA, none of these comments required specific responses or revisions to the affected environment or analysis of environmental impacts.

During the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), specific comments were directed to the Ojito WSA by 27 commenters. Twenty-six commenters that supported wilderness designation cited reasons such as protection of scenery, recreation, ecosystems, wildlife, cultural, and other resources. Other reasons offered were the WSA meets wilderness criteria and designation would be compatible with multiple-use and not have an economic impact. Some commenters felt that wilderness boundaries should be enlarged and that more wilderness areas are needed.

One commenter opposed wilderness designation because such an action would adversely impact the minerals industry.

Appendix 1: Estimated Costs of Acquisition of Non-Federal Holdings Within the Ojito WSA[1]

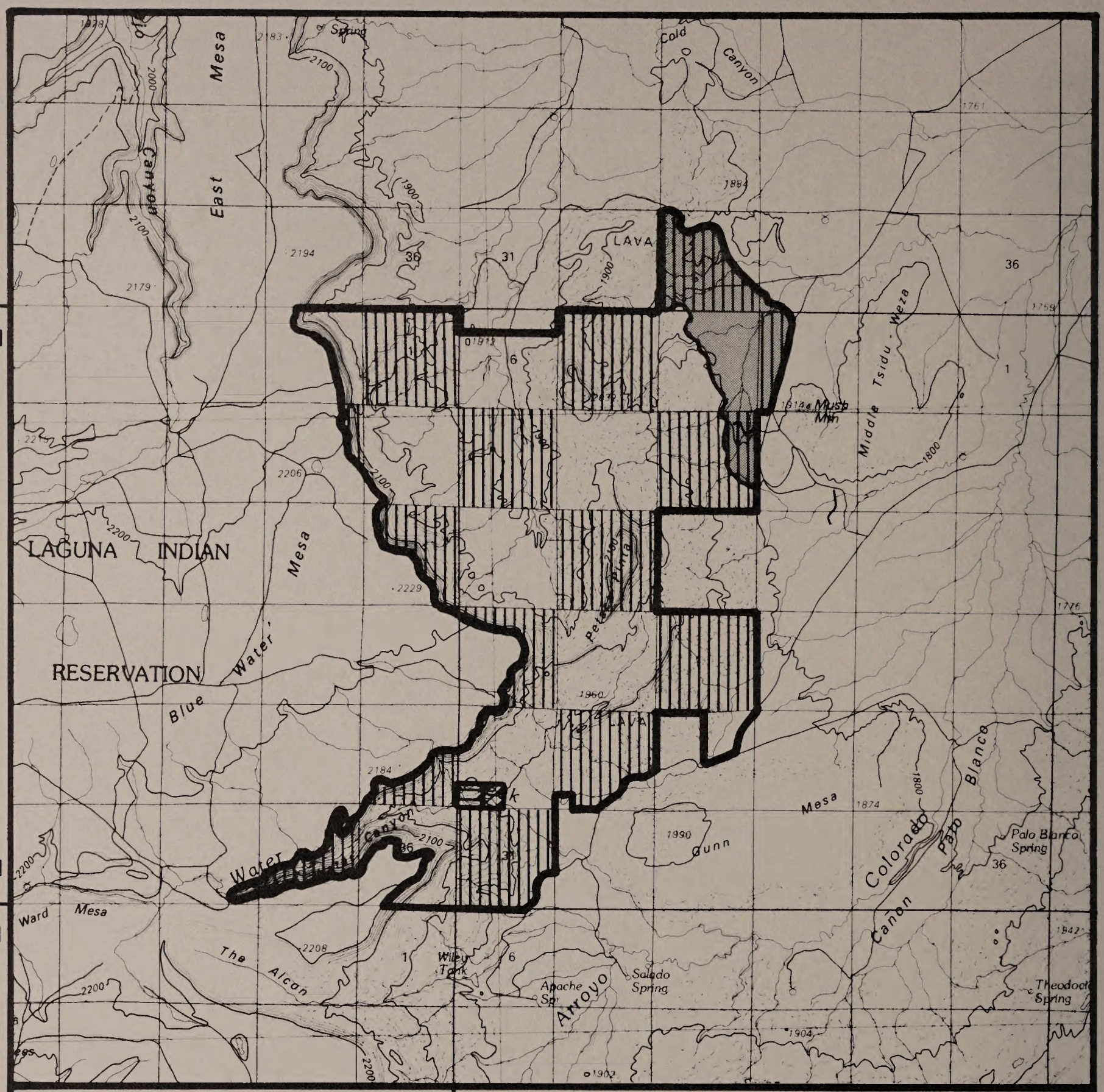
Legal Description (Prior to any Subdivision)	Total Acres	Number of Owners	Type of Ownership by Estate (BLM/ State/ Private) Surface Estate	Subsurface Estate	Proposed for Acquisition (Yes/No)	Preferred Method of Acquisition (Purchase/ Exchange/ Donation)	Estimated Costs of Acquisition[2] Land Costs	Processing Costs
Parcel #1, Sec. 16, T. 15N, R. 1W	640	1	State	State	Yes	Exchange	N/A	$6,400
Parcel #2, Sec. 18, T. 15N, R. 1E	160	1	Private	Private	Yes	Purchase	$ 32,000	$5,000

[1] The estimated costs listed in this appendix in no way represent a formal appraised value of the land or mineral estate, but are rough estimates based on sales or exchanges of lands or mineral estates with similar characteristics to those included in the WSA. The estimates are for purposes of establishing a range of potential costs to the government of acquiring non-Federal holdings and in no way represent an offer to purchase or exchange at the cost estimate included in this appendix.

[2] Where exchange is the proposed acquisition method, only administrative costs of processing the exchange are shown. Processing costs are all miscellaneous expenses other than land costs. These would include work month costs, appraisals, title work, escrow costs, etc. Where direct purchase is proposed, an estimate of both the land costs and the processing costs is provided.

PETACA PINTA
WILDERNESS STUDY AREA

MAP I



RECOMMENDED FOR WILDERNESS

RECOMMENDED FOR NONWILDERNESS

LAND OUTSIDE WSA RECOMMENDED FOR WILD.(None)

SPLIT ESTATE

STATE

PRIVATE

N

0 1 2

MILES

Petaca Pinta Proposal

NM-020-014

April 1990

PETACA PINTA
WILDERNESS STUDY AREA

THE STUDY AREA – 11,668 Acres

The Petaca Pinta Wilderness Study Area (WSA), NM-020-014, is located in Cibola County in west-central New Mexico, 20 miles south of Laguna Pueblo and 50 miles west-southwest of Albuquerque, New Mexico. The WSA includes 11,668 acres of Bureau of Land Management (BLM) land. Surface inholdings include 40 acres of private land and 39 acres of State land. The ownership of the mineral estate is split between public and private ownership, with 5,048 acres being publicly-owned and 6,620 acres privately-owned. (See Table 1 for land status and acreage summary of the study area.) The WSA is bounded on the northwest and west by the Laguna Indian Reservation and on the north, south, and east by maintained dirt roads, State land, and private land.

Landforms in Petaca Pinta WSA vary from gentle grassland to extremely rugged mesas and canyons. Petaca Pinta Mesa dominates the landscape in the WSA. This isolated mesa rises about 1,000 feet above the surrounding land. Blue Water Canyon, in the southwest corner of the WSA, is a deep and narrow box canyon. Petaca Pinta WSA also contains a maze of smaller box canyons, a badlands environment, and a lava flow on the north. Elevation varies from 5,800 feet to 7,300 feet. Vegetation consists of mixed shrub-grassland with scattered juniper and pinyon pine trees. The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. Three alternatives for Petaca Pinta WSA were analyzed in the EIS: an all wilderness alternative, an amended boundary alternative, and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

10,631	Acres recommended wilderness
1,037	Acres recommended nonwilderness

The recommendation is to designate 10,631 acres within the Petaca Pinta WSA as wilderness and release 1,037 acres to other uses (see Map 1). The recommendation is based on the area's overall high quality wilderness values and the presence of four earthen reservoirs which locally impact the naturalness in the area not recommended for wilderness designation. This wilderness recommendation will further apply to any additional inholdings or split-estate acreage acquired through exchange or purchase from willing owners. Appendix 1 lists all inholdings and split-estate tracts and provides additional information on acquisition of inholdings and split-estate minerals.

The All Wilderness Alternative is the environmentally preferable alternative as its implementation would result in the least change from the natural environment over the long-term. The recommendation, while not the environmentally preferred, will be implemented in a manner which would use all practical means to avoid or minimize environmental impacts. The majority of this WSA is recommended as wilderness. On the 1,037 acres not recommended for wilderness designation, there are no surface disturbing activities presently proposed.

The Petaca Pinta WSA consists of extremely rugged mesas and canyons. Petaca Pinta Mesa, near the center of the WSA, rises almost 1,000 feet above the surrounding land. The area recommended for wilderness designation is in a natural condition and

provides outstanding opportunities for solitude and primitive and unconfined recreation. The imprints of man within this area are minimal, and physical isolation ensures opportunities for high quality solitude.

The area recommended for wilderness designation displays high scenic values and is well suited to day hiking, backpacking, and nature photography. Special features in the recommended wilderness include the spectacular sandstone escarpments and Blue Water Canyon. The Blue Water Canyon is a box canyon with a number of perennial seeps supporting a riparian community that includes species such as cottonwood, willow, and cattail. Wildlife species in the area include mule deer, coyotes, badgers, golden eagles, red-tailed hawks, great horned owls, and mountain lions.

The area recommended for wilderness designation could be managed to preserve the existing wilderness values. The current and projected use of the surface is for continued livestock grazing. In addition, the owner of the private mineral estate has indicated an interest in exchanging this estate for Federal minerals outside the WSA. There are no Federal leases, mining claims, or rights-of-way (ROWs) in the WSA.

Conflicts with other resource uses in the area recommended for wilderness designation are limited. Grazing use will be allowed to continue and facility maintenance needs in the WSA are minimal. There are no proposed livestock developments which would be foregone.

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	5,048
Split-Estate (BLM Surface Only)	6,620
Inholdings	79
Total	11,747
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	4,011
BLM (Outside WSA)	0
Split-Estate (Within WSA)	6,620
Total BLM Land Recommended for Wilderness	10,631
Inholdings	79
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	320
Split-estate (BLM Surface Only)	717
Total BLM Land Not Recommended for Wilderness	1,037
Inholdings	0

The mineral survey conducted by U.S. Geological Survey (USGS) and U.S. Bureau of Mines revealed the WSA has a moderate potential for the occurrence of oil and gas, especially along the eastern side of the area. This rating was based on drilling activity 8 miles or more north and south of the WSA which indicated a rapid eastward thickening of the sedimentary rocks favorable for the accumulation of oil and gas. However, several oil and gas exploration wells have been drilled within 26 miles of the WSA, and no commercial production exists. The WSA has a low potential for metallic resources and there is no resource potential for coal.

The 1,037 acres that are not recommended for wilderness designation are within the northeast portion of the WSA. This area contains low quality wilderness values that have been degraded by four earthen reservoirs. Reconstruction of these breached earthen reservoirs has been deemed essential to protection of both on-site and off-site soil and vegetation resources.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The natural state of Petaca Pinta WSA is very apparent. Intrusions within the interior of the area include 2 miles of fence, 2 earthen reservoirs, and 1 mile of vehicle way. The most noticeable human intrusions within the WSA, four earthen reservoirs, are located adjacent to the northeastern boundary in the area not recommended for wilderness. Reconstruction of these breached earthen reservoirs has been deemed essential to protection of both on-site and off-site soil and vegetation resources.

Solitude

The topographic screening created by interspersed mesas and canyons of the WSA, coupled with its physical isolation, ensure outstanding opportunities for solitude.

Primitive and Unconfined Recreation

The Petaca Pinta WSA displays outstanding scenic values and is well suited to day hiking, backpacking, nature study, environmental exploration, and nature photography. The WSA is most attractive for these recreational pursuits during the cooler spring and fall months.

Special Features

The WSA contains Blue Water Canyon which is a box canyon with spectacular sandstone escarpments and rugged topography. This canyon has a number of perennial seeps with an accompanying riparian community that includes species such as cottonwood, willow, and cattail. Domestic livestock cannot enter the upper portion of the canyon due to its inaccessible terrain. Other features include high scenic values and wildlife habitat for red-tailed hawk, mule deer, fox, bobcat, and mountain lion.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The Petaca Pinta WSA is within the Colorado Plateau Province. The potential natural vegetation (PNV) is 11,668 acres of grama/galleta steppe. This ecosystem is currently represented in the National Wilderness Preservation System (NWPS). The ecosystem information is summarized in Table 2.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of Albuquerque and Santa Fe, New Mexico. Table 3 summarizes the number and acreages of designated

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Colorado Plateau Province				
Grama/Galleta Steppe	8	164,365	13	85,985
New Mexico				
Colorado Plateau Province				
Grama/Galleta Steppe	6	105,255	13	85,985

areas and other BLM study areas within a 5-hour drive of these population centers.

Balancing the geographic distribution of wilderness areas

The Petaca Pinta WSA slightly contributes to balancing geographic distribution of areas within the NWPS. Within a 70-mile radius of the WSA are the Cebolla, West Malpais, Sandia and Manzano Mountain Wilderness Areas, totalling 178,000 acres.

Manageability

The Petaca Pinta WSA could be managed to preserve the existing wilderness values. The current and projected use of the surface is for continued livestock grazing. There are no Federal leases, mining claims, or ROWs in the WSA. There is no legal access to the WSA. The BLM would have to pursue legal access for both public use and BLM administrative purposes.

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	693,525
Santa Fe	21	1,422,038	23	384,539

Currently, there is no access to the 40-acre private tract or the 39-acre State inholding. While future access needs could result in impacts to wilderness values, the lands are expected to continue to be managed for livestock grazing purposes. The development of access routes for oil and gas exploration and development is not expected due to the small size of these inholdings and the availability of other lands outside the WSA which also have a moderate potential for oil and gas. However, the acquisition of these inholdings through voluntary exchange would enhance manageability of the area by reducing the potential for conflicting uses. Appendix 1 lists all inholdings and provides additional information on the estimated methods and costs for acquiring non-Federal estates.

The primary manageability issue confronting possible designation of the Petaca Pinta WSA as wilderness is the fact that less than half of the area's mineral estate is publicly-owned. The Petaca Pinta WSA contains 6,620 acres of private subsurface estate scattered throughout the WSA. However, the recently completed Rio Puerco Resource Management Plan included a planned action to pursue acquisition of the private subsurface estate, and the owner has indicated an interest in exchanging these interests for subsurface properties outside the WSA.

Energy and Mineral Resource Values

In 1987, the USGS and U.S. Bureau of Mines conducted investigations to appraise the identified resources and assess the mineral resource potential of the Petaca Pinta WSA. This wide-ranging study included an examination of geologic, geochemical, and geophysical data, as well as a review and assessment of local mining activity. The following is a summary of their findings.

The WSA does not contain any identified metallic mineral resources, mines, or prospects. The potential for the occurrence of metals in the WSA, including uranium, is low. The WSA has an inferred sub-economic resource of sandstone and sand. These resources were found to be sub-economic due to the vast quantities of similar material throughout the region.

The potential for the occurrence of oil and gas is moderate, especially along the eastern side of the area. This rating is based on drilling activity 8 miles or more north and south of the WSA which indicates a rapid eastward thickening of the sedimentary rocks favorable for the accumulation of oil and gas. However, several oil and gas exploration wells have been drilled within 26 miles of the WSA, and no commercial production exists. There is no resource potential for coal.

Impacts on Resources

A comparative summary of impacts by alternative for the Petaca Pinta WSA is shown on Table 4. This information is taken from the Final EIS.

Local, Social, and Economic Considerations

No local social or economic conditions were identified in the New Mexico Statewide Wilderness Study; therefore, no further discussion of this topic will occur in this document.

Summary of WSA-Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Petaca Pinta area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). Numerous individual letters and oral comments supported intensive inventory because they felt the area met wilderness criteria and had unique physical features. BLM determined the area did merit intensive inventory which was conducted in 1980, and the area was recommended as a WSA.

The BLM received 16 individual comments supporting the WSA recommendation for Petaca Pinta. The reasons cited included the area's size, naturalness,

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (11,668 Acres Suitable)	No Wilderness (0 Acres Suitable)	Amended Boundary (Proposed Action; 10,631 Acres Suitable)
Impacts on Wilderness Values	The natural character and visual resources of the rugged mesas and canyons would be maintained. Opportunities for solitude, hiking, and photography would be maintained. The current wildlife habitat supporting golden eagle, red-tailed hawk, scaled quail, mourning dove, mule deer, fox, bobcat, and mountain lion would be protected.	In the short-term, there would be no impacts on wilderness values. In the long-term, potential mineral activities and vehicle uses could degrade naturalness and opportunities for solitude by 20-30 percent.	Impacts would be the same as the All Wilderness Alternative. Although naturalness would be affected on the 1,037 acres excluded under this alternative, naturalness in this portion is marginal.
Impacts on Oil and Gas Exploration and Development	Exploration and development of oil and gas would be foregone. While the area has a moderate potential for the occurrence of oil and gas, exploration and development are not projected in the short-term due to the rugged nature of the area and the presence of more accessible BLM land with similar mineral potential located outside the WSA.	No impacts.	Impacts would be the same as for the All Wilderness Alternative except that 4,728 acres of Federal minerals would be closed to leasing, exploration, and development; 320 acres of Federal minerals in the excluded area would be available for mineral exploration, and impacts would be the same as for the No Wilderness Alternative.
Impacts on Livestock Grazing Use Levels	No impacts on current grazing use levels of approximately 6 head/section/year. Permits required for vehicle access to 2 miles of fence and 7 earthen reservoirs. Casual motorized use of 1 mile of vehicle way for inspections and minor repairs would be precluded. The operator would be inconvenienced by permit requirements.	No impacts on current grazing use levels of approximately 6 head/section/year. No impacts on operator costs or on management style.	Impacts same as for the All Wilderness Alternative on 10,631 acres designated wilderness, except that only 3 of the 7 earthen reservoirs would be within the designated wilderness.

outstanding opportunities for solitude and primitive recreation, and its supplemental values. One comment was received from Acoma Pueblo opposing the WSA recommendation. The letter cited the lack of wilderness criteria. In 1980, the Petaca Pinta area was designated as a WSA.

In December 1982, the Secretary of the Interior issued a legal notice which removed from wilderness study all areas of Federal lands with non-Federal mineral ownership, and areas of less than 5,000 acres. The Petaca Pinta WSA was affected by this action because of the presence of privately-owned minerals beneath alternate sections of BLM administered surface. A court decision issued in April 1985 reversed the Secretarial action, resulting in the reinstatement of Petaca Pinta WSA into the BLM wilderness review program.

Open houses were held in Grants and Albuquerque in February 1986 to reintroduce this area to the public and to serve as scoping for the New Mexico Statewide Wilderness Study.

Wilderness Study Comments

During the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), specific comments were directed to Petaca Pinta WSA by 33 commentators.

Thirty-two commentators favored wilderness designation and cited reasons such as protection of ecosystems, wildlife, recreation, scenery, and cultural resources. Nine commentators suggested that an area larger than the WSA should be designated as wilderness.

One commentator opposed wilderness designation because such an action would adversely impact the minerals industry.

On December 21, 1989, the Acoma Pueblo, in a letter to Senator Jeff Bingaman, voiced opposition to wilderness designation of the Petaca Pinta WSA. The Acoma Pueblo stated that wilderness designation hinders their livestock grazing operation.

Appendix 1: Estimated Costs of Acquisition of Non-Federal Holdings Within the Petaca Pinta WSA[1]

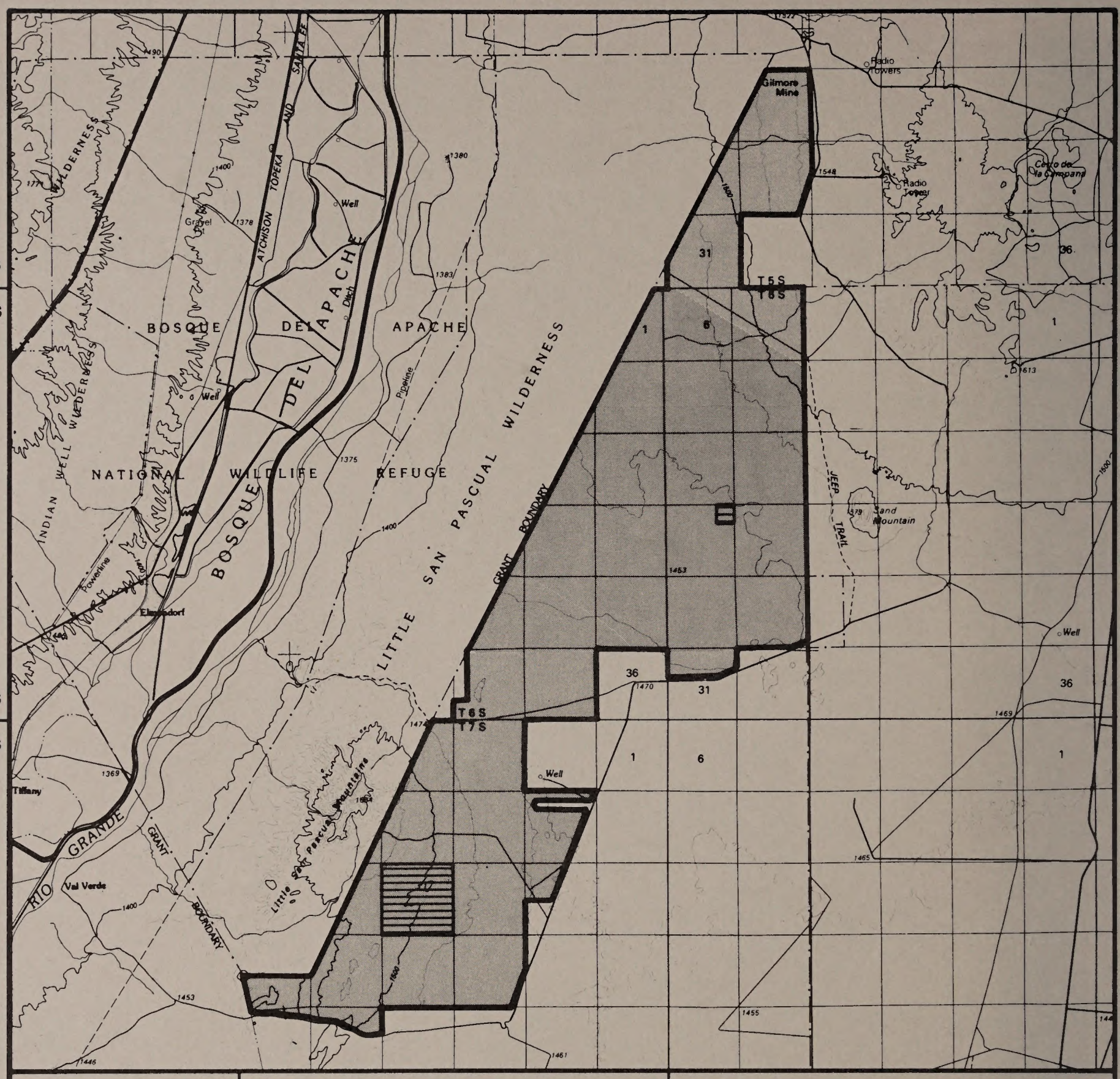
Legal Description (Prior to any Subdivision)	Total Acres	Number of Owners	Type of Ownership by Estate (BLM/ State/ Private) Surface Estate	Subsurface Estate	Proposed for Acquisition (Yes/No)	Preferred Method of Acquisition (Purchase/ Exchange/ Donation)	Estimated Costs of Acquisition[2] Land Costs	Processing Costs
Parcel #1, Sec. 30, T. 6N, R. 6W	39	1	State	State	Yes	Exchange	NA	$1,000
Parcel #2, Sec. 30, T. 6N, R. 6W	40	1	Private	Private	Yes	Purchase	$8,000	$1,000

[1] The estimated costs listed in this appendix in no way represent a formal appraised value of the land or mineral estate, but are rough estimates based on sales or exchanges of lands or mineral estates with similar characteristics to those included in the WSA. The estimates are for purposes of establishing a range of potential costs to the government of acquiring non-Federal holdings and in no way represent an offer to purchase or exchange at the cost estimate included in this appendix.

[2] Where exchange is the proposed acquisition method, only administrative costs of processing the exchange are shown. Processing costs are all miscellaneous expenses other than land costs. These would include work month costs, appraisals, title work, escrow costs, etc. Where direct purchase is proposed, an estimate of both the land costs and the processing costs is provided.

ANTELOPE
WILDERNESS STUDY AREA

MAP 1



RECOMMENDED FOR WILDERNESS (None)

RECOMMENDED FOR NONWILDERNESS

LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS (None)

SPLIT ESTATE (None)

STATE

PRIVATE (None)

N

0 1 2

MILES

Antelope Proposal

NM-020-053

April 1990

ANTELOPE
WILDERNESS STUDY AREA

THE STUDY AREA — 20,710 Acres

The Antelope Wilderness Study Area (WSA), NM-020-053, is located in Socorro County, approximately 15 miles southeast of Socorro, New Mexico. The WSA includes 20,710 acres of Bureau of Land Management (BLM) land and 680 acres of State inholdings. (See Table 1 for land status and acreage summary of the study area.) The WSA is bounded on the west by the Bosque del Apache National Wildlife Refuge and on the east by the White Sands Missile Range (WSMR).

The WSA is a rolling desert prairie with elevations ranging from 4,767 feet to 5,065 feet. The foothills of Little San Pascual Mountain extend into a small portion of the WSA along its southwest boundary.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Final Environmental Impact Statement (EIS)*. The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. Three alternatives for the Antelope WSA were analyzed in the EIS: an all wilderness alternative, an amended boundary alternative, and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

o	Acres recommended wilderness
20,710	Acres recommended nonwilderness

The Antelope WSA is not recommended for wilderness designation (see Map 1). The area contains marginal wilderness values relating to naturalness, outstanding opportunities for primitive and unconfined recreation, and the lack of special features.

The All Wilderness Alternative is the environmentally preferable alternative as its implementation would result in the least change from the natural environment over the long-term. The recommendation, while not the environmentally preferred, will be implemented in a manner which would utilize all practical means to avoid or minimize environmental impacts, thereby ensuring no unnecessary or undue degradation will occur in the area.

Although the central portion of the Antelope WSA generally appears natural, the quality of naturalness is reduced in the northern and southern portions

because of rangeland developments, access routes, powerlines, and communication facilities. Range facilities within the WSA, as well as range facilities, transmission lines, and the communication tower adjacent to the WSA, are noticeable from many viewpoints because of the lack of topographic and vegetation screening.

Although the WSA offers good dove and quail hunting, opportunities for other types of recreation are limited, and opportunities for primitive recreation are of low quality. A 13-mile fence physically divides the Antelope WSA from the U.S. Fish and Wildlife Service's (USFWS) San Pascual Wilderness Area. Even when considered in conjunction with the adjacent wilderness, the Antelope WSA lacks high quality primitive recreation opportunities due to a lack of diversity in either terrain or vegetation. The surrounding landscape viewed from within the WSA is not considered highly scenic or unique. Even without wilderness designation, these recreational opportunities are not expected to change.

Opportunities for solitude are considered outstanding. However, these opportunities exist primarily because of the remoteness of the area and because the area lacks special features to attract people. The quality of this solitude is reduced in the northern and southern portions of the WSA by a relatively narrow configuration and visual intrusions.

Many of the access routes within the WSA lead to water developments (windmills, pipelines, storage tanks, troughs) which require frequent maintenance using motor vehicles. This frequent use reduces the ability to manage the area to provide high quality

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (surface and subsurface)	20,710
Split Estate (BLM surface only)	0
Inholdings	680
Total	21,390
Within the Recommended Wilderness Boundary	
BLM (within WSA)	0
BLM (outside WSA)	0
Split-Estate (within WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings	0
Within the Area Not Recommended for Wilderness	
BLM (surface and subsurface)	20,710
Split Estate (BLM surface only)	0
Total BLM Lands Not Recommended for Wilderness	20,710
Inholdings	680

wilderness values. Frequent use will maintain the diminished naturalness along the 7 1/2 miles of existing vehicle ways.

Approximately 30,287 acres within the Bosque del Apache National Wildlife Refuge, adjacent to the Antelope WSA, is designated as the San Pascual Wilderness. This area is much more natural than the Antelope WSA and contains greater diversity in terrain, vegetation, and special features. Also, comments received from the USFWS oppose wilderness designation for the Antelope WSA because of the quality of Antelope's naturalness, and the impact of Antelope's wilderness designation on access to and manageability of the San Pascual Wilderness.

There are no known special habitats or wildlife species in the WSA that are dependent upon wilderness designation. In addition to the adjacent San Pascual Wilderness, other existing U.S. Forest Service (USFS) wilderness areas and BLM WSAs recommended for wilderness are common in the region.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The Antelope WSA generally appears natural. However, the quality of naturalness is reduced by human impacts inside and adjacent to the WSA.

Human imprints which negatively impact the quality of naturalness within the WSA consist of rangeland developments and ways. There are 7 1/2 miles of ways, 5 miles of buried plastic pipeline, 4 drinking troughs, 1 dirt tank and 3 miles of barbed wire fence inside the WSA.

Human impacts outside the WSA boundaries also affect the feeling of naturalness in the Antelope WSA because of the lack of topographic or vegetation screening. These impacts include: 1 mile of overhead transmission line cherry-stemmed into the southeastern portion of the WSA; a large microwave tower; large storage tanks, corrals, and windmills in two locations on the eastern boundary; and 13 miles of barbed wire fence along the western boundary of the WSA.

Solitude

Opportunities for solitude are greatest in the central portion of the WSA which is bordered by the San Pascual Wilderness on the west and by WSMR on the east. A series of low mountains and sand hills on the WSMR provide some screening from activities occurring east of this portion of the WSA. The quality of solitude is reduced in the northern and southern portions of the WSA by a relatively narrow configuration, access routes, rangeland improvements, and the presence of a maintained county road which forms portions of the eastern and southern boundary of the WSA. Traffic along this road, the road which forms 3 miles of the northeastern portion of the WSA, and vehicles used in ranching operations are visible over a wide area because of the lack of topographic or vegetation screening.

Low altitude military training flights also impact solitude, but because they are intermittent and of short duration, these impacts are not significant.

Primitive and Unconfined Recreation

Although the WSA offers good dove and quail hunting, opportunities for other types of recreation are limited and opportunities for primitive recreation are not outstanding. The vast majority of bird hunting occurring in the WSA is accomplished by motor vehicle access, especially in the northern portion of the area.

Special Features

The only special features in the WSA relate to wildlife; the area provides pronghorn antelope habitat and winter habitat for raptors.

Diversity in the National Wilderness Preservation System

Expanding the Diversity of Natural Systems and Features as Represented by Ecosystems

The Antelope WSA is within the Chihuahuan Desert Province. The potential natural vegetation (PNV) is 20,710 acres of grama/tobosa shrubsteppe. Wilderness designation of the Antelope WSA would not add any additional ecosystems that are not currently represented in New Mexico nor in the National Wilderness Preservation System (NWPS). The ecosystem information is summarized in Table 2.

Assessing the Opportunities for Solitude or Primitive Recreation Within a Day's Driving Time (5 Hours) of Major Population Centers

The WSA is within 5 hours driving time of Santa Fe, Albuquerque, and Las Cruces, New Mexico and El Paso, Texas. Table 3 summarizes the number and acreages of designated areas and other BLM study areas within a 5-hour drive of the population centers.

Balancing the Geographic Distribution of Wilderness Areas

If the Antelope WSA was designated as wilderness, it would not contribute to balancing the geographic distribution of areas within the NWPS. Adjacent to the WSA is the USFWS San Pascual Wilderness. Also, other nearby USFS wilderness areas are the Apache Kid and Withington. These three areas total 94,600 acres.

Manageability

Factors which potentially affect the manageability of the Antelope WSA include: land ownership patterns, rangeland developments, the presence of the area in the WSMR Aerobee 350 Safety Evacuation Zone, the lack of natural barriers to existing off-road vehicle use, and the character of the opportunities for solitude in the area.

The WSA contains 680 acres of State inholdings. Reasonable access will be granted by BLM to these inholdings. This access is not expected to result in significant manageability problems.

The WSA contains some 5 miles of buried plastic pipeline. Required vehicular access to maintain the grandfathered portions of the pipelines would be allowed under wilderness management. These access needs would affect solitude because of the frequency of required access. This would affect large areas in the WSA because of the extreme visibility in this featureless desert grassland.

The western boundary of the WSA is adjacent to the USFWS's San Pascual Wilderness and 5 miles of the eastern boundary of the WSA is formed by the WSMR. While this enhances certain aspects of manageability of the WSA by reducing the possibility of conflicting wilderness uses on adjacent lands, it also presents manageability problems.

Wilderness designation of Antelope WSA would create manageability problems for the management of the USFWS-administered San Pascual Wilderness. The vehicle route along the western boundary of the WSA is used not only by livestock operators, but also by the USFWS for purposes relating to the management of the San Pascual Wilderness. USFWS uses this vehicle route to conduct patrols of the eastern boundary of the wilderness. The route is utilized by hunters and other visitors to reach access points to the wilderness. This route is also used by USFWS to access the boundary fence of the wilderness to perform inspections and compliance checks.

The WSA lies within the WSMR Aerobee 350 Safety Evacuation Zone that must be periodically evacuated during missile firings. The availability of the Safety Zone is required for an indefinite period of time to support future military programs requiring a test range in excess of that provided by the main WSMR. WSMR requires reasonable access to the

Table 2: Ecosystem Representation

Bailey Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Chihuahuan Desert Province				
Grama/Tobosa Shrubsteppe	2	39,907	16	168,266
New Mexico				
Chihuahuan Desert Province				
Grama/Tobosa Shrubsteppe	2	39,907	16	168,266

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	684,483
Las Cruces	14	1,192,386	35	761,924
Santa Fe	21	1,422,038	23	375,497
Texas				
El Paso	12	1,126,112	25	604,343

Safety Zone to recover missile debris and pilotless drones. These access needs are not expected to create serious wilderness management problems because the debris, in most cases, would be removed within the constraints of wilderness management. In those cases where recovery impacts wilderness values, the impacts would not be long-term due to the sandy character of the WSA. The military's need to periodically evacuate the area for safety reasons would slightly complicate wilderness management.

The open landscape and existing use patterns in the area would make it difficult to eliminate vehicular use under wilderness management. Dove and quail hunters use the vehicle ways throughout the WSA during hunting season. Physically closing vehicle ways would not be effective because of the lack of natural barriers to vehicular travel. If signing and public education failed to alter existing use patterns, it would be necessary to fence portions of the WSA to enforce the prohibition of motorized uses.

Managing the area to preserve opportunities for solitude would be difficult because the lack of topographic and vegetation screening and the narrow configuration of portions of the WSA result in impacts to solitude from activities occurring outside the WSA. These activities, primarily normal traffic along County Road 2113 and increased traffic during hunting season, would reduce opportunities for solitude in the WSA.

While these potential manageability problems are not insurmountable, they would require high administrative costs, careful monitoring, and a significant amount of management attention to ensure that wilderness values are maintained.

Energy and Mineral Resource Values

As required by the Federal Land Policy and Management Act, the U.S. Geological Survey and the U.S. Bureau of Mines studied 9,892 acres of the Antelope WSA. This portion of the WSA had been recommended suitable in the 1985 Draft EIS on the Statewide Wilderness Study. Although that recommendation was later changed, the mineral study was completed. Following is a summary of the study report.

There has been no mineral production in the study area in the past, nor are there any mineral prospects or claims. Consequently, the area contains no identified mineral resources. The Carthage coal field less than a mile northeast of the WSA has produced bituminous coal in the past. Similar rock crops out near the northeast boundary of the WSA, and may be present within a few hundred feet of the surface in the northern part of the study area. Therefore, approximately 6,000 acres in the northern portion of the WSA has moderate mineral resource potential for coal. The southeastern part of the study area contains active sand dunes, and therefore, have a high resource potential for sand. However, similar deposits are more readily available elsewhere in the Rio Grande valley. The entire WSA has a low mineral resource potential for metals and oil and gas.

Impacts on Resources

A comparative summary of impacts by alternative for the Antelope WSA is shown in Table 4. This information is taken from the Final EIS.

Local Social and Economic Considerations

No local social or economic considerations were identified in the New Mexico Statewide Wilderness Study; therefore, this topic will not be discussed in this document.

Summary of WSA-Specific Public Comments:

Wilderness Inventory Comments

Public comments were received on the Antelope area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). During the public comment period, comments were received both supporting and opposing WSA status of the area.

Sixteen personal letters favored WSA status of Antelope. These letters were of a general nature and supported WSA status because of the area's naturalness, opportunities for solitude and recreation, and supplemental values. Form letters and petitions received during the comment period listed Antelope as one of the areas supported for wilderness review.

Four personal letters opposed WSA status of Antelope. Two of these letters contained specific reasons why the area lacked outstanding opportunities for solitude. Other supporting reasons included: the area did not appear natural, lack of supplemental values, resource conflicts, and lack of manageability.

After a reevaluation of the Antelope area based on these comments and the area's wilderness characteristics, the BLM released the entire Antelope area from further wilderness review in the *New Mexico*

Wilderness Study Area Decisions. The area was released because it lacked outstanding opportunities for solitude or recreation.

The BLM decision was protested to the BLM New Mexico State Director. The State Director denied the protest and his decision was appealed to the Interior Board of Land Appeals (IBLA).

Wilderness Study Comments

In reviewing the decision, the IBLA stated that the BLM improperly decided not to consider the scenic vistas attributable to the contiguity of the San Pascual Wilderness in determining the opportunities for solitude. The IBLA then reversed the BLM decision denying the protest and remanded Antelope to the BLM as a WSA.

As a result of the ruling, Antelope is a WSA and its suitability for wilderness designation was evaluated in the *Las Cruces District Wilderness Supplemental Draft Environmental Assessment* (1984). During the public comment period on this document, 36 personal inputs with 37 signatures were received which favored wilderness designation of the Antelope WSA. In addition, 29 personal inputs with 42 signatures, 7 form letters with 15 signatures, and 2 petitions with 147 signatures opposed wilderness designation of the Antelope WSA.

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (20,710 Acres Suitable)	No Wilderness (Proposed Action; 0 Acres Suitable)	Amended Boundary (9,892 Acres Suitable)
Impacts on Wilderness Values	Wilderness protection would maintain the rolling grasslands of this Chihuahuan desert ecosystem. Opportunities for solitude, hiking,and nonmotorized quail and dove hunting would also be maintained.	Rangeland management activities and additional vehicular access routes would reduce naturalness and solitude opportunities by 15-20 percent in 80 percent of the WSA over the long-term. Existing access routes and new access routes used by hunters and livestock operators would contribute to the degradation of 15-25 percent of the area. Degradation is projected in the central and northern portions of the WSA.	Wilderness protection would maintain the area's wilderness values. The remaining 50 percent of the area would be impacted as described under the No Wilderness Alternative.

Comments favoring wilderness designation most often noted the need to include areas of "open, expansive Chihuahuan Deserts" in the NWPS, the value of the Antelope WSA as an addition to the adjacent Little San Pascual Wilderness, and the lack of resource conflicts if the area were designated wilderness. Commenters also stated that the draft report failed to consider boundary adjustments to improve wilderness values and manageability, and that the relationship of the Antelope WSA to the San Pascual Wilderness was inadequately addressed.

As noted in the public comments, the draft report failed to consider a logical amended boundary. As a result of these comments BLM included an Amended Boundary Alternative in the EIS.

Comments opposing wilderness designation of the Antelope WSA primarily noted that the San Pascual was enough wilderness for this part of New Mexico.

Many of the comments opposing wilderness designation cited the impacts to ranch operations and impacts to access to the old town site and cemetery at Val Verde, as well as to the San Pascual Wilderness Area. Several commenters felt the Antelope WSA was nonsuitable because it is "an arid land with no natural water, very little vegetation, hardly any wildlife, and no recreational attractions."

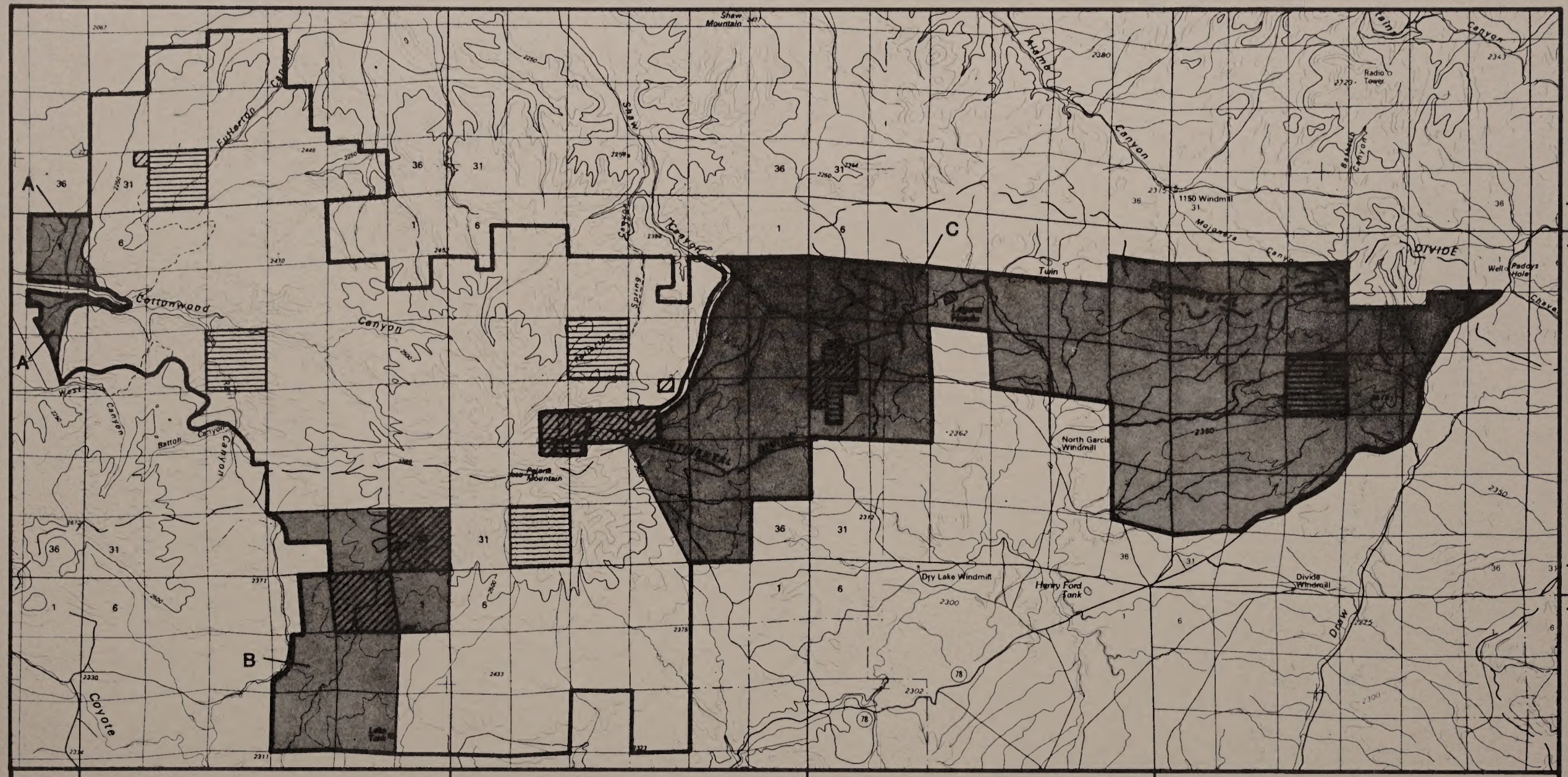
WSMR expressed concern that wilderness designation would conflict with their periodic need to enter the area to recover debris and their use of the area for low altitude training flights. Designation would limit the military's access to the area, but reasonable access could be granted after determining the means that would least impact wilderness values.

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commenters supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition which included the Antelope WSA and recommended wilderness designation for 19,680 acres of the WSA. Specific comments were directed to the Antelope WSA by 11 commenters. Ten commenters supported wilderness designation and one opposed.

During this public comment period, the USFWS submitted comments recommending the No Wilderness Alternative for the Antelope WSA. This recommendation was based on the agency's contention that the WSA had been severely impacted by livestock grazing and was unnatural in character.

During the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), specific comments were directed to the Antelope WSA by 29 commenters, all of whom favored wilderness designation. Also, 185 commenters supported the 1.88 million-acre New Mexico BLM Wilderness Coalition proposal and 62 commenters supported the Earth First! proposal. Both of these Statewide proposals supported wilderness designation for this WSA.

CONTINENTAL DIVIDE WILDERNESS STUDY AREA



RECOMMENDED FOR WILDERNESS

RECOMMENDED FOR NONWILDERNESS

LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS (None)

SPLIT ESTATE (None)

STATE

PRIVATE

N

0 1 2
MILES

Continental Divide Proposal

NM-020-044

April 1990

MAP 1

CONTINENTAL DIVIDE WILDERNESS STUDY AREA

THE STUDY AREA - 68,761 Acres

The Continental Divide Wilderness Study Area (WSA), NM-020-044, is located in Catron County, 60 air miles west-southwest of Socorro, New Mexico. The WSA includes 68,761 acres of Bureau of Land Management (BLM) land. The WSA also contains 1,680 acres of private land and 3,420 acres of State inholdings. (See Table 1 for land status and acreage summary of the study area). The WSA is bounded on the north and south by private and State lands, on the east by State Highway 78, and on the west by roads and State land.

The WSA is located along the Continental Divide, which runs east-west. Pelona Mountain, at 9,212 feet, is the highest point in the WSA. The lowest elevation, occurring on the western edge of the WSA, is 6,785 feet. The WSA is characterized as a transition zone of grassland, pinyon-juniper, and ponderosa pine vegetation.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. Three alternatives for the Continental Divide WSA were analyzed in the EIS: an all wilderness alternative, an amended boundary alternative, and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

37,599	Acres recommended wilderness
31,162	Acres recommended nonwilderness

The recommendation for this WSA is to designate 37,599 acres as wilderness and release the remaining 31,162 acres for uses other than wilderness (see Map 1). The area recommended for wilderness contains the highest wilderness values of naturalness, solitude, and primitive recreation. It also includes exceptional supplemental values such as outstanding scenic qualities, diverse ecosystems, and significant cultural resources. The area not recommended for wilderness is of a different physical character than the land recommended for wilderness. The area has less wilderness quality and lacks the supplemental values that characterize the portion recommended suitable. Additionally, the lands not recommended for wilderness also contain moderate resource potential for oil and gas, have unrecognizable boundaries, and present manageability problems. This recommendation for wilderness will further apply to any additional inholding acreage acquired through purchase or exchange with willing owners. Appendix 1 lists all inholdings and provides additional information on acquisition of inholdings.

The All Wilderness Alternative is the environmentally preferable alternative as its implementation would result in the least change to the natural environment over the long-term. The recommendation, while not environmentally preferred, will be implemented in a manner which would utilize all practicable means to avoid or minimize environmental impacts. More than half of this WSA is recommended for wilderness. In the 31,162 acres not recommended for wilderness, possible oil and gas exploration and development could occur due to moderate resource potential ratings.

The 37,599 acres recommended for wilderness designation are ecologically diverse, representing a grassland transition zone, a pinyon-juniper woodland, and a high elevation ponderosa pine forest. This diversity in terrain and vegetation has created a highly scenic area along the Continental Divide.

This area contains significant habitat for big game and nongame animals. Golden eagles and other raptors nest in the area. Wintering bald eagles have been observed in the WSA.

The area contains high quality primitive recreation values including hunting, hiking, backpacking, camping, and horseback riding. These opportunities are likely to be enhanced by the Continental Divide National Scenic Trail which is expected to be routed through this area. Several large canyons, with hundreds of feet of relief provide secluded areas

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	68,761
Split-Estate (BLM Surface Only)	0
Inholdings	5,100
Total	73,861
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	37,599
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	37,599
Inholdings	2,640
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	31,162
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	31,162
Inholdings	2,460

for experiencing solitude. The relatively large size of the area, coupled with its rugged terrain, further enhances these values.

Known archeological sites include Bat Cave which is listed on the National Register of Historic Places.

The area recommended for wilderness can also be managed to preserve the quality of the wilderness characteristics. Vehicle routes form portions of the eastern, southern, and western boundaries. Other boundaries are readily identifiable because of the natural change in terrain. The topography and vegetation of the area and the absence of conflicting land uses or private rights would allow the BLM to manage the recommended area to ensure its preservation and use as wilderness. Approximately 1,600 acres of private land would be excluded from the wilderness area, enhancing BLM's ability to manage the area.

The conflicts with other resource uses of land recommended for wilderness designation in this WSA are limited. Grazing use will be allowed to continue and facility maintenance requirements in this portion of the WSA are minimal. There are no currently proposed livestock developments that would be foregone. The area has been rated by the U.S. Geological Survey (USGS) and Bureau of Mines as having moderate resource potential for oil and gas. The report also rated the WSA as having low potential for tin; a downgrading of this classification from the BLM rating which was identified in the Final EIS. This new information, however, does not change BLM's recommendation. Some exploration for oil and gas could be foregone in the area recommended for wilderness. However, due to terrain features and accessibility, the majority of oil and gas exploration is anticipated to occur in the areas recommended for nonwilderness.

The 31,162 acres not recommended for wilderness designation are of a different physical character. Although they can be managed as wilderness, other factors exist which support a nonwilderness recommendation. These 31,162 acres comprise three separate parcels identified as A, B, and C. (See Map 1.)

Parcel A is approximately 950 acres and is located on the western end of the WSA at one of the primary access points to the Continental Divide WSA. The reason this area is not recommended for wilderness is because of terrain, boundary features, access, and manageability. By not including this parcel as part of the Continental Divide Wilderness, access to wilderness would be improved by providing opportunities for trailhead development, including room for parking near the mouth of Cottonwood Canyon. Exclusion of this parcel from wilderness would also improve manageability because terrain features would make the wilderness boundary much more identifiable, and conflicts relating to maintenance of the pipeline which crosses through this parcel would be eliminated.

Parcel B is approximately 5,550 acres and is located on the southwest corner of the WSA. This parcel is not recommended for wilderness because of manageability concerns and the quality of wilderness values. This parcel contains two sections (1,280 acres) of private land which present manageability problems. Additionally, naturalness is diminished on this parcel due to the visibility and amount of livestock developments that exist on this land.

Parcel C is approximately 24,660 acres and is located on the east side of the WSA. This parcel is not recommended for wilderness because of the quality of naturalness and solitude and manageability concerns. This parcel is comprised of open grassland which is less natural than the 15,000 acres of open grassland in the recommended area. This area does not provide the same degree of solitude offered by the more diverse vegetation and landform of the area recommended for wilderness. Solitude and naturalness are also diminished by numerous access routes (12 miles) which criss-cross the parcel. This recommendation would make this area available for oil and gas exploration and development. The area has moderate potential for the occurrence

of oil and gas, and ongoing exploration is taking place nearby.

In parcels A, B, and C, there are no known special features, habitats, or wildlife species that would depend on wilderness designation. Although there is some exploration projected for these parcels, it is not expected that this will substantially change the condition of the vegetation or the quality of the pronghorn antelope habitat.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The Continental Divide WSA generally appears natural. The feeling of naturalness in the WSA is enhanced by its large size and topographic variation. Ponderosa pine and pinyon-juniper woodlands cover much of the northwestern third of the WSA and provide a high degree of vegetation screening. These factors reduce the impacts of rangeland developments, vehicle ways, and evidence of past logging in the WSA.

This 68,761-acre WSA contains approximately 45 miles of vehicle ways which vary in nature from washed out logging roads to regularly used ranch access routes. Most of the logging roads have not been used regularly since logging operations ceased in 1960; some of these roads are returning to their former condition. Others have become access routes for ranch operations and have been maintained by the passage of vehicles. Other routes in the WSA have been created to provide access to rangeland developments and pastures on both BLM and private lands.

Other impacts on the area's naturalness include 28 dirt tanks and 51 miles of fences. The impact of these rangeland developments upon the naturalness of the WSA varies with the type of terrain in which they are found. In the rolling, grassy areas in the eastern portion of the WSA, the lack of vegetation screening extends the visual impacts of rangeland developments over a wider area. Portions of the WSA north and west of Pelona Mountain are forested and many rangeland developments are generally not noticeable. However, some impacts are apparent because of the visibility afforded by ridgelines and other topographic features.

Human impacts in the forested areas west and north of Pelona Mountain include old logging roads and downed timber and stumps left from past logging activity which covered approximately 2,500 acres. The logging operation abruptly ended as some trees were cut and never removed. The impacts of these past human activities are becoming less evident, through natural processes, with the passage of time and do not significantly affect the naturalness of the WSA.

Human impacts, such as fences and dirt tanks, are noticeable over a large area in the eastern portion of the WSA due to the lack of either topographic or vegetation screening.

The large size of the WSA coupled with the available topographic and vegetation screening mitigate the human impacts on naturalness and the WSA generally appears natural.

Solitude

The remote location and topographic variation in much of the Continental Divide WSA offer outstanding opportunities for solitude. However, in the eastern portion of the WSA these opportunities exist primarily because of remoteness. The quality of solitude is reduced slightly in the rolling grassland sections of the WSA where the open character of the landscape and the lack of vegetation screening increase the area affected by other human activities. Human activities in the area consist primarily of motorized access in support of ranch operations and hunters.

Portions of the WSA north and west of Pelona Mountain are forested and this vegetation screening provides a high degree of solitude. There are existing ranch operations requiring motorized access in this area, but the topographic and vegetation screening reduces the significance of their impacts.

Primitive and Unconfined Recreation

Primitive recreation opportunities are highest in the forested, mountainous area of the northwestern portion of the WSA. These opportunities include hunting, sightseeing, hiking, and camping. Deer and pronghorn hunting account for most of the current recreational use in the WSA. The varied topography, vegetation, wildlife, and the scenic vistas found in the area provide good sightseeing opportunities. Hiking and camping opportunities are considered excellent. These opportunities are expected to be enhanced because it is anticipated that the proposed Continental Divide National Scenic Trail will be routed through this portion of the WSA. Due to lack of vegetation and terrain diversity and supplemental values, recreation opportunities are limited primarily to hunting in the eastern portion of the WSA.

Special Features

Wildlife, archeological, and scenic values are the Continental Divide WSA's most significant special features. The remote, undeveloped character of the region and the diverse vegetation and landforms result in a wide variety of wildlife in the area. The southern and eastern portions of the WSA provide excellent pronghorn habitat. Forested portions of the WSA support a moderate mule deer population as well as mountain lion, black bear, turkey, and elk. Golden eagles and other raptors nest in the area. Wintering bald eagles are also found in the WSA.

Archeological sites are not known to be numerous in the area, but this may be the result of the low level of inventory. Known archeological sites include Bat Cave and a historic multi-room masonry structure of unknown origins. Bat Cave is on the National Register of Historic Places. Earlier people, living in the cave on the shores of the extinct Lake Augustine, developed what is believed by some to be the earliest domesticated maize in North America.

The numerous vantage points provided by the mountainous and rolling terrain of the WSA and the open character of the surrounding landscape result in outstanding scenic vistas. These vistas include the expanse of the Plains of San Augustine to the west and north, and mountains including the San Mateo, Black Range, and the Gila and Aldo Leopold Wilderness Areas to the east and south.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: The Continental Divide WSA is within the Upper Gila Mountains Forest Province. The potential natural vegetation (PNV) is 4,945 acres of ponderosa pine/Douglas fir forest, 11,112 acres of pinyon/juniper woodland, and 52,704 acres of grama/galleta steppe. Wilderness designation of this WSA would add examples of these three ecosystems to the National Wilderness Preservation System (NWPS). The ecosystem information is summarized in Table 2.

Assessing the Opportunities for Solitude or Primitive Recreation Within a Day's Driving Time (5 Hours) of Major Population Centers

The WSA is within 5-hours driving time of Santa Fe, Albuquerque, and Las Cruces, New Mexico. Table 3 summarizes the number and acreages of designated areas and other BLM study areas within a 5-hour drive of the population centers.

Balancing the geographic distribution of wilderness areas

The Continental Divide WSA slightly contributes to balancing the geographic distribution of areas within the NWPS. In a clockwise direction, the U.S.

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Upper Gila Mountains Forest Province				
Ponderosa Pine/Douglas Fir Forest	10	567,609	1	2,462
Pinyon/Juniper Woodland	12	447,438	6	90,251
Grama/Galleta Steppe	1	87,906	2	4,600
New Mexico				
Upper Gila Mountains Forest Province				
Ponderosa Pine/Douglas Fir Forest	5	531,449	1	2,462
Pinyon/Juniper Woodland	2	220,865	3	41,890
Grama/Galleta Steppe	1	87,906	2	4,600

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	636,432
Las Cruces	14	1,192,386	35	713,873
Santa Fe	21	1,422,038	23	327,446

Forest Service Withington, Apache Kid, Aldo Leopold, Gila and Blue Range Wilderness Areas are all within a 50-mile radius from the Continental Divide WSA. These areas total 853,698 acres.

Manageability

The Continental Divide WSA could be managed to preserve the wilderness values which presently

exist. It was judged manageable by the BLM after considering such factors as: private and State inholdings, valid existing rights, topography, and the overall land ownership pattern. While these factors would complicate wilderness management, the Continental Divide WSA could be managed as wilderness.

Surface inholdings in the WSA total 3,420 acres of State land and 1,680 acres of private land. Reasonable access would be granted by the BLM to the owners of these inholdings. The surface inholdings in the WSA contain rangeland developments including dirt tanks, a windmill, fences, and vehicle routes. Future noncompatible uses of these private and State inholdings could impact the wilderness values of the WSA.

A private inholding north of Pelona Mountain could present the most significant management problem. It is located at the base of Pelona Mountain and contains the largest body of water in the WSA, as well as a cabin. The presence of these features will require special management attention to avoid conflicts between recreational users and the landowner.

The presence of private mineral rights in an area which is believed to have some degree of mineral potential does create a possibility of incompatible uses occurring within the area.

The lack of topographic barriers to vehicular travel along the eastern portion of the WSA would create trespass problems resulting from existing use patterns. These existing use patterns consist primarily of hunters driving to hunting camps within the WSA. Public education and increased levels of patrolling could reduce, but not eliminate, these problems.

Two roads which are cherry-stemmed into the western and northern portions of the WSA compound the problem of regulating vehicular access. The first enters the northern part of the WSA from Shaw Canyon and provides access to a private inholding containing a cabin owned and used by the Shaw Canyon Ranch. This road is used primarily for ranch operations and by hunters during hunting season. A second road, cherry-stemmed up Cottonwood Canyon, provides access to the western portion of the WSA for ranch operators, BLM personnel, and hunters.

Acquisition of 2,560 acres of State land and 80 acres of private land within the recommended wilderness area boundary would greatly enhance management.

Energy and Mineral Resource Values

In 1984 and 1985, the USGS and the U.S. Bureau of Mines conducted a mineral resource appraisal of the Continental Divide WSA. This wide-ranging study included an examination of geologic, geochemical, and geophysical data, as well as a review and assessment of local mining activity. The following is a summary of their findings.

No identified (known) mineral resources, mines, prospects, or mineralized areas were located in the WSA. Tin, uranium, thorium, silver and antimony were detected in samples from the WSA but not in sufficient quantities to represent a resource. The mineral resource potential for these metals as well as iron, manganese, zinc, lead, copper, molybdenum, and gold is considered low.

Subsurface structures in Pre-Tertiary rocks that may contain hydrocarbons are present beneath the entire San Augustine Plain including the WSA. Therefore, these conditions represent a moderate resource potential for oil and gas in the WSA.

Impacts on Resources

A comparative summary of impacts by alternative for the Continental Divide WSA is shown on Table 4. This information is taken from the Final EIS. However, since the Final EIS was released, new information concerning the potential for the occurrence of tin was submitted to BLM by the USGS and Bureau

of Mines. Because tin was an issue in the Final EIS and the new information changes the evaluation, this table has been revised to include the updated information.

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (68,761 Acres Suitable)	No Wilderness (0 Acres Suitable)	Amended Boundary (Proposed Action; 37,599 Acres Suitable)
Impacts on Wilderness Values	The Continental Divide's forested mountains, rolling grasslands, and opportunities for solitude, hiking, hunting, and camping would be maintained. Wildlife habitat for such species as pronghorn, mule deer, black bear, turkey, mountain lion, elk, and raptors would be maintained in a natural condition.	Development of access routes for mineral exploration and development, fuelwood, and timber harvest would break this roadless area up into several parcels. Wilderness values would be lost over a widespread area. Apparent naturalness of approximately 75 percent of the area would be degraded. Opportunities would be diminished throughout the area.	The forested mountains and approximately 20 percent of the area's grasslands would be maintained in a natural condition. This would maintain the area's solitude and recreation opportunities as well as abundant wildlife habitat. Eighty percent of the area recommended nonsuitable for wilderness designation is rolling grasslands. Construction of 5-10 miles of vehicle routes and mineral exploration would result in a total loss of wilderness values.
Impacts on Tin Exploration	When 24,000 acres of the WSA were considered to have a moderate potential for tin, wilderness designation was expected, over the long-term, to preclude the opportunity to make a full determination of the area's tin potential. A recently published report by the USGS and Bureau of Mines downgraded the BLM's evaluation of tin potential which was identified in the Final EIS as moderate. The resource potential for tin is now considered to be low, therefore, this is no longer considered an issue.	No impacts.	Under this alternative, 16,600 acres were identified as having a moderate potential for tin. Due to the downgrading of BLM's rating of tin potential from moderate to low by the USGS and Bureau of Mines, tin is no longer considered an issue.

Local Social and Economic Considerations

Local social or economic conditions were not identified as an issue in the New Mexico Statewide Wilderness Study; therefore, this topic is not discussed in this document.

Summary of WSA-Specific Comments

Wilderness Inventory Comments

Public comments were received on the Continental Divide area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). During the public comment period, comments were received supporting and opposing WSA status of the area. The Continental Divide WSA was one of New Mexico's ten most discussed areas during the intensive wilderness inventory phase of the wilderness review process. The large size of the WSA and the presence of extensive grasslands which were felt to be underrepresented in the NWPS were stressed in public support for recommending the entire WSA as wilderness. It was also pointed out that the area appears natural, offers outstanding opportunities for solitude and primitive recreation, and contains supplemental values.

Opponents of wilderness designation for the Continental Divide WSA included some Catron County residents and segments of the mineral and livestock industries. Prominent reasons included the effects of excluding the area from possible future mineral exploration and development, the presence of human impacts, limitations on ranch operations, and the feeling that additional wilderness would conflict with future development in the least developed of New Mexico's counties.

Wilderness Study Comments

During the public comment period on the *Draft Environmental Assessment Socorro District Wilderness* (1983), 27 letters were received. Twenty-four of these letters supported wilderness designation for an area larger than that proposed in the Draft. It was noted that the area has high wilderness and wildlife values, diverse landforms and habitats, and that this diversity would be increased through the addition of a larger area of grassland. Maps were also submitted in support of proposed boundary alternatives which would include additional areas of grassland.

Two letters were received which opposed designation of the area as wilderness. Reasons for this opposition included the mineral potential of the area, especially for tin and base metals; its potential favorability for oil and gas; and the opinion that the area is monotonous and unnatural.

One response did not indicate support or opposition for wilderness designation, but commented on the lack of adequate data concerning livestock use in the amended boundary and on possible conflicts between wilderness designation and the objectives identified in the West Socorro Rangeland Management Program EIS.

The major issues raised during the public comment period concerned the alternative selected by the Area Manager rather than the adequacy of the resource information or impacts presented in the report. It was noted by opponents of wilderness designation that the area's mineral potential, especially for tin, indicates that it should be recommended unsuitable for wilderness designation.

The alternate boundary proposed in public comments represents a new alternative which was considered in the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985). Twenty-three commenters specifically addressed the Continental Divide WSA with 19 favoring designation of the area as wilderness and four opposing. Those favoring wilderness designation cited the areas large size, its vegetative and topographic diversity, and the area's outstanding wilderness values. Those opposing wilderness designation cited conflicts with livestock grazing and development of the area's mineral resources.

In addition, a total of 340 commenters supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition. Alternative W included the Continental Divide WSA and recommended wilderness designation for the entire WSA.

During the public comment period on the *New Mexico Statewide Study: Revised Draft Environmental Impact Statement* (1986), 185 commenters supported the 1.88 million-acre BLM New Mexico Wilderness Coalition proposal and 62 commenters supported the Earth First! proposal. Both of these Statewide proposals supported wilderness designation for this WSA. There were 32 commenters that specifically addressed the Continental Divide WSA. All these comments supported designation of the Continental Divide as wilderness. Some of the reasons included: the value of the wilderness outweighs the value of the other resources; wilderness designation will protect unique ecosystems; BLM overstated the value of the other resources; boundaries should be enlarged; and the area has high scenic values. The New Mexico BLM Wilderness Coalition recommended the inclusion of nearby state land as part of the Continental Divide Wilderness.

Appendix 1: Estimated Costs of Acquisition of Non-Federal Holdings Within the Continental Divide WSA[1]

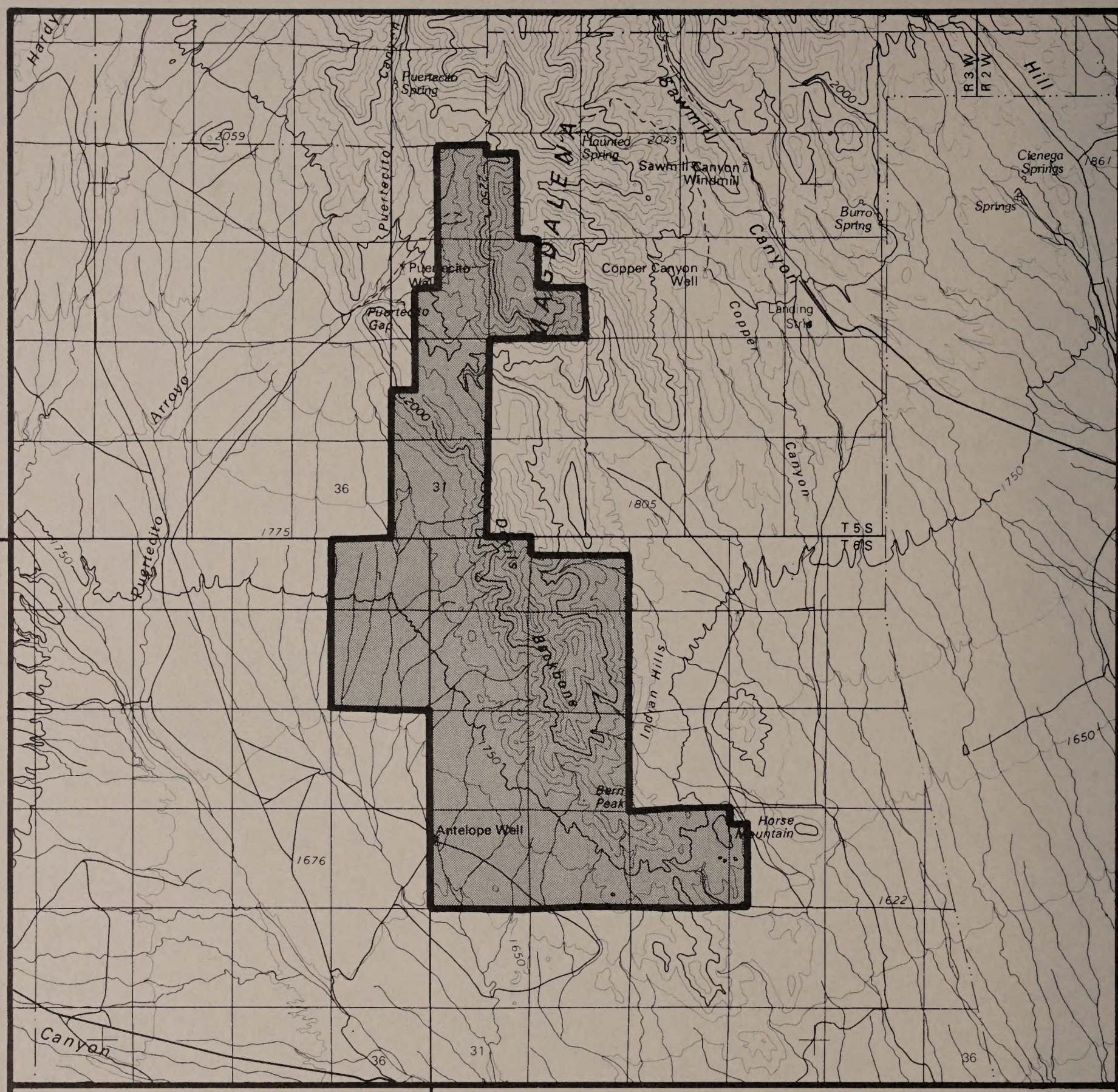
Legal Description (Prior to any Subdivision)	Total Acres	Number of Owners	Type of Ownership by Estate (BLM/ State/ Private) Surface Estate	Subsurface Estate	Proposed for Acquisition (Yes/No)	Preferred Method of Acquisition (Purchase/ Exchange/ Donation)	Estimated Costs of Acquisition[2] Land Costs	Processing Costs
Parcel #1, Sec. 31, T. 6S, R. 13W	40	1	Private	Private	Yes	Undetermined	$5,000	$5,000
Parcel #2, Sec. 32, T. 6S, R. 13W	640	1	State	State	Yes	Exchange	NA	$6,400
Parcel #3, Sec. 16, T. 7S, R. 12W	640	1	State	State	Yes	Exchange	NA	$6,400
Parcel #4, Sec. 22, T. 7S, R. 12W	40	1	Private	Private	Yes	Undetermined	$5,000	$5,000
Parcel #5, Sec. 32, T. 7S, R. 12W	640	1	State	State	Yes	Exchange	NA	$6,400
Parcel #6, Sec. 16, T. 7S, R. 13W	640	1	State	State	Yes	Exchange	NA	$6,400
Parcel #7, Sec. 28, T. 7S, R. 12W	40	1	State	State	Yes	Exchange	NA	$1,000
Parcel #8, Sec. 29, T. 7S, R. 12W	40	1	State	State	Yes	Exchange	NA	$1,000

[1] The estimated costs listed in this appendix in no way represent a formal appraised value of the land or mineral estate, but are rough estimates based on sales or exchanges of lands or mineral estates with similar characteristics to those included in the WSA. The estimates are for purposes of establishing a range of potential costs to the government of acquiring non-Federal holdings and in no way represent an offer to purchase or exchange at the cost estimate included in this appendix.

[2] Where exchange is the proposed acquisition method, only administrative costs of processing the exchange are shown. Processing costs are all miscellaneous expenses other than land costs. These would include work month costs, appraisals, title work, escrow costs, etc. Where direct purchase is proposed, an estimate of both the land costs and the processing costs is provided.

DEVIL'S BACKBONE
WILDERNESS STUDY AREA

MAP I



R4W | R3W

RECOMMENDED FOR WILDERNESS (None)

RECOMMENDED FOR NONWILDERNESS

LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS (None)

SPLIT ESTATE (None)

STATE (None)

PRIVATE (None)

N

0 1 2

MILES

Devil's Backbone Proposal

NM-020-047

April 1990

DEVIL'S BACKBONE WILDERNESS STUDY AREA

THE STUDY AREA – 8,904 Acres

The Devil's Backbone Wilderness Study Area (WSA), NM-020-047, is located in Socorro County, approximately 15 miles southwest of Socorro, New Mexico. The WSA includes 8,904 acres of Bureau of Land Management (BLM) land. (See Table 1 for land status and acreage summary of the study area.) The WSA lies at the southern end of the Magdalena Mountains. The northern boundary of the WSA adjoins the Cibola National Forest. The remainder of the WSA is surrounded by State and private lands and all boundaries follow legal subdivision lines.

The WSA includes a portion of the rugged and broken southern flank of the Magdalena Mountains. The WSA rises precipitously out of the surrounding desert grassland and culminates in sharp, knife-like ridges and stark, rocky peaks. Elevations range from 5,400 feet to 8,100 feet. The extreme topography is occasionally interspersed with small park-like areas on mountain and ridgetops, on benches, and in the saddles between peaks.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. Two alternatives for the Devil's Backbone WSA were analyzed in the EIS: an all wilderness alternative and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

0	Acres recommended wilderness
8,904	Acres recommended nonwilderness

The Devil's Backbone WSA is not recommended for wilderness designation (see Map 1). This recommendation is based on the fact that while the area contains the wilderness values to meet the study criteria, the area's naturalness and opportunities for solitude and primitive recreation are not considered to be of a quality to merit inclusion in the National Wilderness Preservation System (NWPS).

The All Wilderness Alternative is the environmentally preferable alternative as its implementation would result in the least change to the natural environment over the long-term. The recommendation, while not environmentally preferred, will be implemented in a manner which would utilize all practicable means to avoid or minimize environmental impacts. There are no known or projected surface disturbing activities, and no significant impacts to natural values are expected.

The Devil's Backbone WSA marginally meets the naturalness criterion. The area contains numerous rangeland and watershed developments and 5 miles of vehicle ways. A bladed vehicle route, discovered after the wilderness inventory, also parallels a water pipeline which crosses the northern portion of the WSA.

Although there are outstanding opportunities for solitude in the WSA, these characteristics exist primarily as a result of remoteness and the lack of special features in the WSA to attract visitors, rather than any intrinsic qualities found in the WSA.

Although outstanding opportunities exist for primitive and unconfined recreation, there are better opportunities available in other nearby areas. These include the more diverse upper regions of the adjacent Magdalena Mountains and several U.S. Forest Service wilderness areas. These areas offer a much wider diversity of recreational opportunities than those present in the Devil's Backbone WSA. The primitive recreation opportunities offered in Devil's Backbone WSA are of no greater quality or diversity than in any undeveloped mountainous area in the region.

There are certain factors which reduce the BLM's ability to effectively manage the area as a wilderness. The primary problem is the WSA boundary is based on legal subdivision lines. From a topographic standpoint, this boundary is arbitrary and difficult to locate on the ground. The WSA is also relatively small and much of the northern portion is very narrow, averaging less than 1 mile wide. Much of the WSA is also surrounded by private land.

Golden eagles have been known to nest in the WSA, however, there are no known special habitats nor wildlife species in the WSA that would depend upon wilderness designation.

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	8,904
Split-Estate (BLM Surface Only)	0
Inholdings	0
Total	8,904
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	0
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings	0
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	8,904
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	8,904
Inholdings	0

In the Devil's Backbone WSA, there are no known or projected activities, no valid existing rights, and no projected energy or mineral exploration. Therefore, even without wilderness designation, the quality and level of the values now found in the WSA are not expected to significantly change.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The Devil's Backbone WSA marginally meets the naturalness criterion because of the cumulative impacts of intrusions, especially in the north end. The area contains numerous rangeland and watershed developments and 5 miles of vehicle ways. Included in the WSA is a bladed vehicle route which parallels a water pipeline in the northern portion of the WSA.

Solitude

Solitude opportunities within the Devil's Backbone WSA are considered outstanding. These opportunities result primarily from the remoteness of the area and, to a lesser degree, the WSA's topographic features. The opportunities for solitude are not unique to the WSA, with the open expanses of relatively undeveloped lands near the WSA offering similar opportunities.

Primitive and Unconfined Recreation

Although outstanding opportunities exist for primitive and unconfined recreation, there are better opportunities available in other nearby areas. These include the more diverse upper regions of the adjacent Magdalena Mountains. Within 15 miles of the WSA are the 19,663-acre Withington Wilderness Area, the 44,650-acre Apache Kid Wilderness, and the 30,287-acre San Pascual Wilderness Area. In addition, the 202,016-acre Aldo Leopold Wilderness Area is 50 miles south of the WSA. These areas offer a much wider diversity of recreational opportunities than those present in the Devil's Backbone WSA. The primitive recreation opportunities offered in Devil's Backbone WSA are of no greater quality or diversity than in any undeveloped mountainous area in the region.

Special Features

The WSA does not contain significant special features. Scenic views exist of areas outside the WSA and the area does provide habitat for golden eagle nests and mule deer.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The Devil's Backbone WSA lies within the Chihuahuan Desert Province and the Upper Gila Mountain Forest Province. The potential natural vegetation (PNV) consists of 3,904 acres of grama/tobosa shrubsteppe and 4,000 acres of grama/galleta steppe within the Chihuahuan Desert Province; and 1,000 acres of pinyon/juniper woodland within the Upper Gila Mountains Forest Province. Wilderness designation of the Devil's Backbone WSA would not add any additional ecosystems that are not currently represented in New Mexico nor in the NWPS. This information is summarized in Table 2.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of Albuquerque, Las Cruces, and Santa Fe, New Mexico and El Paso, Texas. Table 3 summarizes the number and acreages of designated areas and other BLM study areas within a 5-hour drive of these populations centers.

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Chihuahuan Desert Province				
Grama/Tobosa Shrubsteppe	2	39,907	16	185,072
Grama/Galleta Steppe	1	87,906	2	53,304
Upper Gila Mountains Forest Province				
Pinyon/Juniper Woodland	12	447,430	6	100,363
New Mexico				
Chihuahuan Desert Province				
Grama/Tobosa Shrubsteppe	2	39,907	16	185,072
Grama/Galleta Steppe	1	87,906	2	53,304
Upper Gila Mountains Forest Province				
Pinyon/Juniper Woodland	2	220,865	3	52,002

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	696,289
Las Cruces	14	1,192,386	35	773,730
Santa Fe	21	1,422,038	23	387,303
Texas				
El Paso	12	1,126,112	25	616,149

Balancing the geographic distribution of wilderness areas

Designating the Devil's Backbone WSA as wilderness would not contribute significantly to balancing the geographic distribution of wilderness. The Withington Wilderness is 15 miles southeast of Devil's Backbone and the Apache Kid Wilderness is approximately 15 miles to the west.

Manageability

The area can be managed as wilderness; however, manageability of the Devil's Backbone as wilderness would be difficult. There are certain factors which reduce the BLM's ability to effectively manage the area as wilderness. From a topographic standpoint, the boundary is arbitrary and difficult to locate on the ground. The WSA is also relatively small and much of the northern portion is very narrow averaging less than 1 mile wide. The primary topographic feature of the WSA is Black Mountain. The mountain dominates the WSA and provides the majority of opportunities for solitude and primitive recreation. Topographic features of secondary importance are Devil's Backbone and Seep Springs Draw. The northern end of Black Mountain is in private ownership and the center of Black Mountain and portions of Devil's Backbone are in State ownership.

Energy and Mineral Resource Values

The potential for occurrence of mineral resources, either energy or nonenergy, is rated by BLM Geologists as low in the Devil's Backbone WSA.

Impacts on Resources

A comparative summary of impacts by alternative for the Devil's Backbone WSA is shown on Table 4. This information is taken from the Final EIS.

Wilderness Inventory Comments

Public comments were received on the Devil's Backbone area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). The majority of the initial inventory comments supported wilderness review of the area. The rationale included size, naturalness, opportunities for solitude and recreation, and supplemental values. One petition and 2,524 form letters were received endorsing a conservationist proposal for wilderness study of the area.

Four comments were received opposing wilderness designation or wilderness study. Supporting reasons were that the area was less than 5,000 acres, it is unmanageable due to shape or size, it

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (8,904 Acres Suitable)	No Wilderness (Proposed Action; 0 Acres Suitable)
Impacts on Wilderness Values	Wilderness protection would maintain the natural character of the predominately grass covered ridges and stark, rocky peaks. Interspersed among the higher peaks are scattered stands of pinyon pine and ponderosa pine. The solitude opportunities provided by this broken topography as well as the opportunities for day hikes, photography, and bird watching would also be maintained.	Rangeland management activities and additional vehicle ways from hunting and mineral exploration are expected to occur over the long-term. As a result, naturalness and opportunities for solitude and primitive recreation would be reduced by 50 percent in the northern half of the area.

does not appear to be natural, it has range impacts, and it offers no opportunities for solitude or primitive recreation.

Wilderness Study Comments

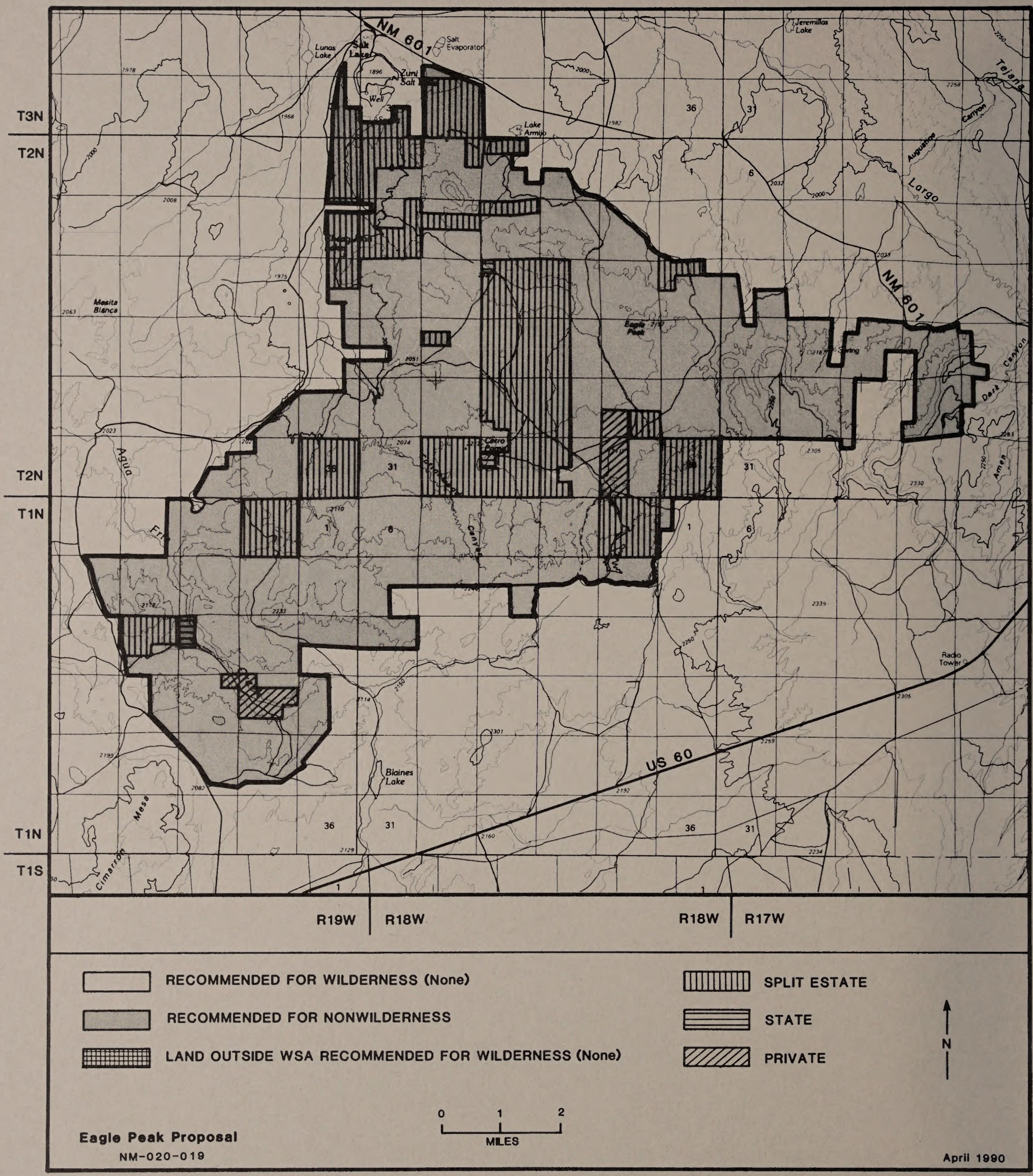
During the public comment period on the *Draft Environmental Assessment Wilderness Study Areas in the Las Cruces District* (1983), 17 comments were received. Nine respondents supported wilderness designation. Reasons given were related to the area's wilderness and wildlife values. In addition, the commenters questioned the BLM's assessment of the manageability problems. Eight respondents opposed wilderness designation. Among the reasons cited were: potential mineral resources, lack of naturalness, and agreement with BLM's judgment that the area presented manageability problems.

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985), BLM received 465 comments in the form of comment letters and testimony at public hearings. A total of 340 commenters supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition. Specific comments were directed to the Devil's Backbone WSA by 6 commenters, all of whom supported wilderness designation for this area. The reasons given in support of wilderness were: lack of access is not a justifiable reason to recommend the area nonsuitable; wilderness will protect cultural values and protect the area from off-road vehicles (ORVs); the area meets wilderness criteria for naturalness, solitude, and size; the boundaries should be enlarged; the area has high recreational values; and BLM overstated the manageability problems.

During the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), 184 commenters supported the wilderness designation of the Devil's Backbone WSA as part of the 1.88 million-acre New Mexico BLM Wilderness Coalition proposal. Another 61 supported wilderness designation of the Devil's Backbone WSA as part of the 5 million-acre wilderness proposal of Earth First!. In addition, 24 commenters specifically addressed the Devil's Backbone WSA with 23 of those supporting wilderness designation and 1 opposing. Those supporting wilderness cited the area's wilderness, ecological, and scenic values. Many commenters also stated the area designated should be enlarged. The one opposing comment gave no supporting reason.

EAGLE PEAK
WILDERNESS STUDY AREA

MAP 1


NM 601
Salt Evaporator
Lunas Lake
Salt Lake
Zuni Salt Well
Jeremillas Lake
Lake Armijo
Tejana Canyon
Augustine Canyon
Largo
NM 601
Mesita Blanca
Eagle Peak
Spring
Dart Canyon
Agua
Arroyo
Cerro Largo
Canyon
Amen
Radio Tower
US 60
Blaines Lake
Mesa
Cimarron
T3N
T2N
T1N
T2N
T1N
T1S
R19W
R18W
R18W
R17W
RECOMMENDED FOR WILDERNESS (None)
RECOMMENDED FOR NONWILDERNESS
LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS (None)
SPLIT ESTATE
STATE
PRIVATE
N
0 1 2
MILES
Eagle Peak Proposal
NM-020-019
April 1990

EAGLE PEAK
WILDERNESS STUDY AREA

THE STUDY AREA – 43,960 Acres

The Eagle Peak Wilderness Study Area (WSA), NM-020-019, is located in western Catron County, approximately 100 air miles northwest of Socorro, New Mexico. The WSA contains 43,960 acres of Bureau of Land Management (BLM) land including 10,892 acres of split-estate (Federal surface, non-Federal subsurface). There are 160 acres of State and 840 acres of private inholdings. (See Table 1 for land status and acreage summary of the study area.) The WSA is generally bordered to the north, east, and south by private land and to the west by a county road.

The Eagle Peak WSA consists of rolling topography broken by sandstone and basalt mesas and canyons. Volcanic features, including large cinder cones and associated lava flows, are also present and result in a topographically diverse WSA. Elevations rise from 6,400 feet to 7,550 feet, with the highest elevations occurring in the eastern portion of the WSA.

The WSA was studied under Section 603 of the Federal Land Policy and Management ACT (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. There were three alternatives analyzed in the EIS: an all wilderness alternative, an amended boundary alternative, and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

0	Acres recommended wilderness
43,960	Acres recommended nonwilderness

The Eagle Peak WSA is not recommended for wilderness designation (see Map 1). The recommendation is based on the manageability of the area as wilderness as related to the 10,892 acres of non-Federal mineral estate and the area's moderate mineral resource potential.

The All Wilderness Alternative is the environmentally preferable alternative as its implementation would result in the least change to the natural environment over the long-term. The recommendation, while not the environmentally preferred, will be implemented in a manner which would utilize all practical means to avoid or minimize environmental impacts. In particular, the BLM has designated 8,840 acres in the southwest portion of the WSA as the Cerro Pomo Special Management Area (SMA). The Cerro Pomo SMA was established by the BLM to protect cultural and geological resources and improve recreation opportunities and wildlife habitat. The SMA contains the scenic Cerro Pomo cinder cone and lava flow. The habitat is a combination of pinyon/juniper hills and rolling grasslands. Cultural resources include the Cerro Pomo Pueblo village site with two large kiva depressions. The management goals for the Cerro Pomo SMA are to protect the area's ar-

cheological sites and recreation and scenic values. The BLM will limit motor vehicle use to existing roads and trails, close the area to woodcutting, and restrict all rights-of-way authorizations and mineral material sales in the SMA. This administrative management option protects the key features of the WSA, while allowing for the future opportunity to develop the mineral resources outside of the SMA. The Eagle Peak WSA contains moderate resource potential for coal, uranium, cinders, and sand and gravel. There are no surface disturbing activities presently proposed; however, energy and mineral exploration and development may occur in the future. Any mineral exploration and development activity will be regulated to prevent unnecessary and undue degradation.

The entire WSA is rated by BLM Geologists as having moderate potential for coal. While exploration and development is not anticipated at this time, coal mining is currently occurring 15 miles north of the WSA. The WSA contains approximately 8,000 acres which have been rated by BLM Geologists as moderate mineral resource potential for uranium. If future economic conditions favor uranium mining, various areas within Eagle Peak could be targets for exploration and development.

The existence of 10,892 acres of State-owned mineral rights in an area believed to have potential for mineral development will limit the ability of the BLM to protect wilderness values in this WSA. The exercise of these rights, through mineral exploration and development, would prevent BLM from manag-

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	33,068
Split-Estate (BLM Surface Only)	10,892
Inholdings	1,000
Total	44,960
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	0
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings	0
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	33,068
Split-estate (BLM Surface Only)	10,892
Total BLM Land Not Recommended for Wilderness	43,960
Inholdings	1,000

ing the Eagle Peak WSA as wilderness in the long-term. These split-estate lands are concentrated in the center of the WSA, but are also found in scattered sections throughout the WSA. The extent and location of these rights precludes adjusting the boundaries to produce a manageable wilderness area.

Surface ownership patterns include 840 acres of private inholdings (with mineral rights) and 160 acres of State land (with mineral rights). While not as extensive as the subsurface inholdings, these surface inholdings would also create manageability problems. One of the surface inholdings presents a special problem for wilderness management because it contains a large diesel powered water pump. The sound of the diesel motor, when running, can be heard in a wide area around the inholding.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The Eagle Peak WSA has diverse landforms ranging from sandstone mesas and volcanic cinder cones to gently rolling hills and lava flows. Vegetation in the WSA is characterized by scattered pinyon-juniper woodlands interspersed among short grasslands.

The human impacts in the WSA consist of rangeland developments and access routes which support livestock grazing. The Eagle Peak WSA contains 12 livestock watering structures (dirt tanks and drinking troughs along pipelines), 2 storage tanks, 1 windmill, about 40 miles of fence, 4 miles of inconspicuous buried pipeline, and 1 mile of electric powerline, which is cherry-stemmed into the northwestern portion of the WSA. Access to these rangeland developments is provided by 60 miles of vehicle ways. These vary in quality from dim two-track ways to well-used major ranch access routes. The impacts in this WSA are not typically screened from view by topography or vegetation. This lack of screening causes existing impacts to extend their visual influence over a wide area. Because impacted areas occur in all but the extreme eastern portion of the WSA, there appears to be little potential for boundary adjustments to improve the naturalness of the WSA. The cumulative effect of human impacts reduces the level of naturalness in the Eagle Peak WSA.

Solitude

The Eagle Peak WSA has numerous topographic features and wooded areas which provide outstanding opportunities for solitude. These opportunities are greatest in the wooded mesas of the extreme eastern part of the WSA and the mesas and canyons in the southern and southwestern portions of the WSA.

Higher elevations of the WSA, because of the greater visibility afforded, offer less potential for avoiding the evidence of human activities than the well-screened canyons and mesa edges.

Primitive and Unconfined Recreation

Outstanding opportunities for primitive recreation in the WSA consist primarily of sightseeing, hiking, and camping. The primitive nature of these opportunities is reduced by the large number of rangeland developments scattered throughout the WSA. Sightseeing opportunities are provided by the geology of the area, which includes sandstone mesas and volcanic cinder cones. The geology of the area also provides some rockhounding opportunities for small pieces of petrified wood and agate. Large raptors, including golden eagles, add interest to sightseeing in the WSA. Mule deer and pronghorn antelope also may be seen, but are not common. The cultural resources of the area, especially the rock art which can be found on many of the sandstone mesas, also provide sightseeing opportunities. The geology and wildlife add interest to hiking or camping in the WSA. Extended camping

would be limited, however, by the lack of water. Deer hunting occurs in the WSA, but is limited by low populations of mule deer.

Special Features

The Eagle Peak WSA contains significant archeological values representing human habitation since archaic times (approximately 6000 BC). The cultural values of the WSA are enhanced considerably by the presence of Zuni Salt Lake, located immediately north of the WSA. The Lake has long been a source of pure salt. Indian ruins dating back 1,000 years have been found in the area, which give evidence of the prehistoric importance of the area. Because of the availability of this nutritional necessity, the Indians of the Southwest, including the Acoma, Laguna, Zuni, Apache, and Navajo, have built up extensive religious beliefs concerning the area. Many tribes continue to make pilgrimages to the Lake to gather domestic salt and to worship. Among the deities believed to inhabit the area are the Twin War Gods and Salt Mother. With the arrival of the Spaniards in 1540, the Lake became known historically when they praised the quality of the salt in their journals. The Zuni Salt Lake, in addition to being a source of salt and ceremonial significance, was considered to be neutral ground, regardless of current hostilities.

Volcanic features, including a series of cinder cones, adds geologic and scenic significance to the area. In addition, the WSA provides habitat which supports year-round use by golden eagles and occasional use by wintering bald eagles.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: The Eagle Peak WSA lies within the Colorado Plateau Province with a potential natural vegetation (PNV) of 19,960 acres of grama/galleta steppe and 24,000 acres of juniper/pinyon woodland. Wilderness designation of this WSA would add examples of two ecosystems which are currently represented in both New Mexico and nationally in the National Wilderness Preservation System (NWPS). This information is summarized in Table 2.

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Colorado Plateau Province				
Grama/Galleta Steppe	8	164,365	12	71,130
Juniper/Pinyon Woodland	10	139,367	87	2,071,842
New Mexico				
Colorado Plateau Province				
Grama/Galleta Steppe	6	105,255	12	71,130
Juniper/Pinyon Woodland	4	33,084	13	118,567

Table 3: Wilderness Opportunities for Residents of Major Population Centers

NWPS Areas			Other BLM Studies	
Population Centers	Areas	Acres	Areas	Acres
New Mexico				
Albuquerque	26	1,762,638	31	661,233
Santa Fe	21	1,422,038	23	352,247

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of Albuquerque and Santa Fe, New Mexico. Table 3 summarizes the number and acreages of designated areas and other BLM study areas within a 5-hour drive of the population centers.

Balancing the geographic distribution of wilderness areas

Designating the Eagle Peak WSA as wilderness would marginally contribute to balancing the geographic distribution of wilderness. Within 50 miles is the West Malpais, Cibolla, Escudilla, and the Blue Range Wilderness Areas. These areas total approximately 135,200 acres.

Manageability

Subsurface ownership patterns present a significant problem for management of the WSA as wilderness. Mineral rights under 10,892 acres of BLM land are in State ownership. This split-estate land is concentrated in the center of the WSA, but is also found in scattered sections throughout the WSA. The extent and location of these rights preclude adjusting boundaries to produce a more manageable area.

The impacts to wilderness values in the WSA from providing access to these subsurface inholdings are difficult to assess at this time. Incompatible uses are expected to occur, however, because private rights exist in an area believed to have moderate uranium potential. Recently, interest in coal development has shifted north of the WSA about 15 miles due to new information.

The existence of extensive non-Federal mineral rights in an area believed to have potential for mineral development will limit the ability of the BLM to protect wilderness values in this WSA. The exercise of these rights through mineral exploration and development would preclude managing the Eagle Peak WSA as wilderness in the long-term.

Surface ownership patterns include 840 acres of private inholdings (with minerals) and 160 acres of State land. While not as extensive as the subsurface inholdings, these surface inholdings would also create manageability problems. One of the surface inholdings presents a special problem for wilderness management because it contains a large diesel powered water pump. The sound of the diesel motor, when running, can be heard in a wide area around the inholding.

Manageability of the area as wilderness would be enhanced by the acquisition through voluntary exchange of 10,892 acres of State mineral rights and

1,000 acres of surface inholdings. This acquisition would reduce the possibility of incompatible uses occurring in the WSA, if it is designated as wilderness and reduce problems arising from providing reasonable access to these inholdings. Much of the WSA boundary is surrounded by private land and is not readily identifiable on the ground. As a result, extensive signing would be needed in an attempt to establish an identifiable boundary.

Energy and Mineral Resource Values

Private and government exploration in areas 15 to 20 miles northeast of the WSA have identified possible economic coal reserves within the Mesa Verde group. Since the Mesa Verde group occurs as a shallow feature in much of the WSA, it has received a moderate potential rating. However, the potential for economic coal deposits is low because the coal would occur in thin beds at depth.

Within the WSA, uranium mineralization is associated with the Baca formation and the Point Lookout sandstone of the Mesa Verde group. Initial exploration within and adjacent to the WSA has identified sub-economic uranium mineralization within the Baca formation. The wide spacing of the drill holes used to investigate the area's uranium potential could have left areas of more favorable uranium mineralization undetected. Considering a possible revival of the uranium industry, the WSA was rated by BLM geologists as having a moderate potential for uranium resources.

Several hundred mining claims were recorded in 1978 with the BLM for the area along and within the southeastern margin of the WSA where the Baca formation crops out. The Energy Reserves Group and Teton Exploration drilling located these claims for potential uranium mineralization. Nine uranium test holes were drilled within the southernmost group of claims, four of which were along the southern border of the WSA. Five additional test holes were also drilled within the southeast-central portion of the WSA. This exploration, which occurred between 1979 and 1981, detected sub-economic uranium mineralization. If economic and political conditions again favor the uranium industry, the region containing the WSA could be a target for exploration. Currently, there are no valid mining claims within the WSA.

There are several excellent sources of cinders within the WSA. These cinder cones are associated with flows of Quaternary basalt. The WSA's cinder deposits are of excellent quality and could be used for any of the typical lightweight aggregate or landscaping purposes associated with this type of material. The excellent cinder deposits within the WSA have poor access which reduces their economic significance. Development of these resources would depend on future population increases in the vicinity of the WSA. A moderate potential exists for cinder resources in the WSA.

Impacts on Resources

A comparative summary of impacts by alternative for the Eagle Peak WSA is shown on Table 4. This information was taken from the Final EIS.

Local Social and Economic Considerations

No local social or economic considerations were identified in the New Mexico Statewide Wilderness Study; therefore, these issues are not addressed in this document.

Summary of WSA - Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Eagle Peak area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). Public comment supported this recommendation (22 individual comments) on the basis that the area is over 5,000 acres in size, meets the naturalness criteria,

Table 4: Comparative Summary of Impacts by Alternatiave

Issue Topics	All Wilderness (43,960 Acres Suitable)	No Wilderness (Proposed Action; 0 Acres Suitable)	Amended Boundary (17,290 Acres Suitable)
Impacts on Wilderness Values	The natural character of the Eagle Peak WSA's sandstone and basalt mesas as well as the outstanding opportunities for solitude, sightseeing, hiking and camping, and cultural sites consisting of petroglyphs, campsites and villages from the Archaic period to the homesteading era would be maintained. Up to 30 drill holes would result in approximately 15 acres of surface disturbance and up to 5 miles of new ways and roads would be constructed if private rights are exercised on the split-estate land. This would reduce the quality of naturalness on 10 percent of the WSA.	In the long-term, wilderness values, particularly naturalness, would be adversely affected by uranium exploration. The road network which would be developed for mineral exploration would create several roadless areas of about 5,000-8,000 acres in size. Opportunities for solitude, hiking, and camping would be reduced in quality. Removal of vegetation and disturbance of the soil resulting from this activity would create a visual impact for approximately 20-30 percent of the WSA.	The southern portion of the WSA's mesas and canyonland country would be maintained in a natural condition. This would maintain the area's solitude and primitive recreation opportunities as well as wildlife habitat and cultural resources. About 60 percent of the nonsuitable area is rolling juniper covered hills while the remaining nonsuitable country is sandstone cliffs and basalt mesas. Construction of 8-10 miles of vehicle routes and mineral exploration in this area would result in a total loss of wilderness values in the region.
Impacts on Exploration for Uranium Resources	Based upon past interest in the area, no exploration in the short-term is expected to occur. In the long-term, energy and mineral exploration would be precluded on 8,000 acres of moderate uranium potential.	No significant impacts on energy or mineral resources are expected.	Based upon past interest in the area, no exploration in the short-term is expected to occur. In the long-term, energy and mineral exploration would be precluded on 7,400 acres of moderate uranium potential. No restrictions would apply on 600 acres of moderate uranium potential in the nonsuitable area. Approximately 93 percent of the moderate uranium potential would be precluded from development.

offers outstanding opportunities for both solitude and primitive recreation, and possesses supplemental values.

Opposition (5 individual comments) maintained the area lacked naturalness due to presence of rangeland improvements. The BLM has acknowledged the presence of these impacts but maintains they are substantially unnoticeable within the context of the unit as a whole. No comments were received which altered this judgement.

Resource conflicts were also cited (2 individual comments) by those objecting to this recommended WSA. It was indicated that economically recoverable coal deposits may be present in the area and the installation of planned rangeland improvement structures may be hampered by WSA status. The BLM, however, could not consider resource conflicts in reaching a WSA decision.

Wilderness Study Comments

During the public comment period on the *Draft Environmental Assessment Socorro District Wilderness* (1983), 19 letters and 52 coupons were received. Fourteen letters and the coupons indicated disagreement with the Area Manager's nonsuitable recommendation. Among the reasons cited in support of designation were the benefits of wilderness to wildlife and the additional protection which wilderness designation would provide to cultural resources inside the WSA and to Zuni Salt Lake, which is near the northern boundary of the WSA. There was also disagreement with the assessment of the manageability problems resulting from the extensive mineral inholdings in the WSA.

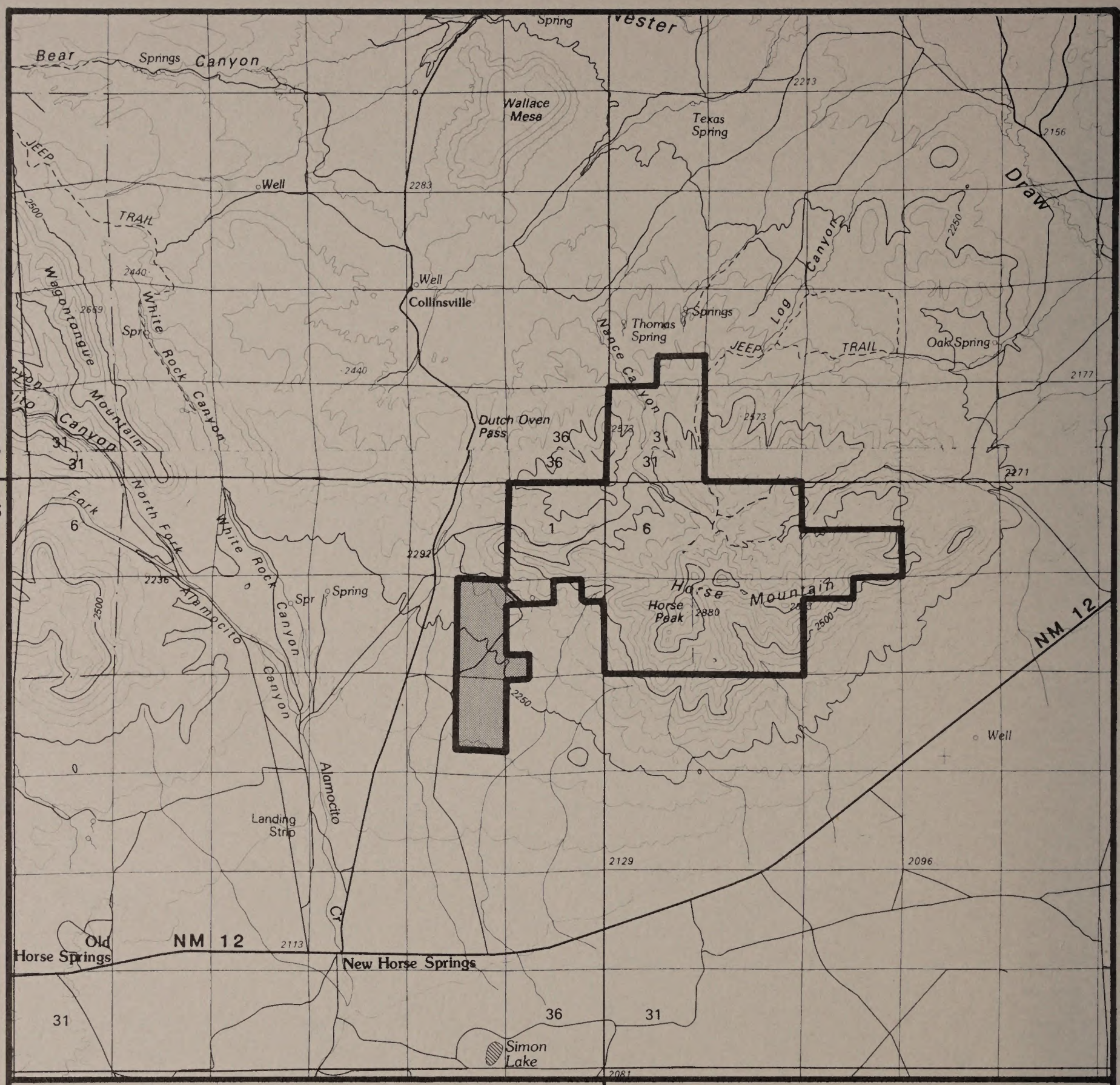
Five letters concurred with the nonsuitable recommendation. These respondents cited the man-made features in the WSA and noted that the natural setting of the WSA has been and will continue to be significantly disturbed by ranching and probable mineral development activities. The mineral potential of the WSA was also a prominent reason for opposition to designation. One respondent, the holder of a State coal lease adjacent to the northeast boundary of the WSA, commented that drilling indicates that the leased property as well as the WSA has the potential for future coal development.

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commenters supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition. Alternative W included the Eagle Peak WSA and recommended wilderness designation for the entire WSA. Specific comments were directed to the Eagle Peak WSA by 104 commenters, all of which supported wilderness designation.

During the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), specific comments were directed to the Eagle Peak WSA by 30 commenters.

HORSE MOUNTAIN
WILDERNESS STUDY AREA

MAP I



RECOMMENDED FOR WILDERNESS

RECOMMENDED FOR NONWILDERNESS

LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS (None)

SPLIT ESTATE (None)

STATE (None)

PRIVATE (None)

N

0 1 2

MILES

Horse Mountain Proposal

NM-020-043

April 1990

HORSE MOUNTAIN
WILDERNESS STUDY AREA

THE STUDY AREA – 5,032 Acres

The Horse Mountain Wilderness Study Area (WSA), NM-020-043, is located in Catron County, approximately 75 air miles west of Socorro, New Mexico. The WSA includes 5,032 acres of Bureau of Land Management (BLM) land (see Table 1 for land status and acreage summary of the study area). The WSA is bounded on the west and south by State land and on the north and east by private and State lands.

The WSA is an isolated mountain range with steep, rugged terrain. Elevations range from approximately 2,500 feet at the lower elevations to 9,490 feet atop Horse Peak. The WSA is generally a transition zone from grasslands to pinyon/juniper to ponderosa pine forest at the higher elevations.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Final EIS was filed with the Environmental Protection Agency in February 1988. Three alternatives for the Horse Mountain WSA were analyzed in the EIS: an all wilderness alternative, an amended boundary alternative, and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

4,432	Acres recommended wilderness
600	Acres recommended nonwilderness

The recommendation for this WSA is to designate 4,432 acres as wilderness and release the remaining 600 acres for uses other than wilderness (see Map 1). The area recommended for wilderness designation contains the highest wilderness values of naturalness, solitude, and primitive recreation. The 600-acre area is of a different character and is not suitable for wilderness designation.

The All Wilderness Alternative is the environmentally preferable alternative as its implementation would result in the least change to the natural environment over the long-term. The recommendation, while not the environmentally preferred, will be implemented in a manner which would utilize all practical means to avoid or minimize environmental impacts. The majority of this WSA is recommended as wilderness. In the 600 acres not recommended for wilderness, there are no surface disturbing activities presently proposed. There is a slight possibility of oil and gas exploration impacting up to 5 acres which could slightly change the natural environment of the area.

The lands recommended for designation are characterized by outstanding scenic qualities and diverse wildlife habitat present on Horse Mountain. The recommended area contains significant habitat for mule deer, elk, bear, mountain lions, and raptors. Golden eagles and other raptors nest in the area. Wintering bald eagles have been observed in the Horse Mountain area. Wilderness designation will ensure long-term protection for bears, mountain lions, raptors, and wintering bald eagles known to depend on habitats where there is a low level of human activity.

The area recommended for wilderness can be managed to preserve the quality of the wilderness characteristics. The boundaries are readily identifiable because of the natural change in terrain. A vehicle route forms the southern boundary. The topography and vegetation of the area and the absence of conflicting land uses or private rights would allow the BLM to manage the area to ensure its preservation and use as wilderness in an unimpaired condition.

The conflicts with other resource uses of lands recommended for wilderness designation in this WSA are limited. Grazing use will be allowed to continue and facility maintenance requirements are minimal. There are no new livestock management facilities that would be foregone. The area has been rated by the U.S. Geological Survey (USGS) and U.S. Bureau of Mines as having moderate mineral

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	5,032
Split-Estate (BLM Surface Only)	0
Inholdings	0
Total	5,032
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	4,432
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	4,432
Inholdings	0
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	600
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	600
Inholdings	0

resource potential for oil and gas. No exploration would be foregone in the part of the WSA recommended for wilderness. Exploration is only projected within the 600 acres not recommended for wilderness. A test well was drilled within a half mile of this part of the WSA in 1987, but was dry.

The 600 acres not recommended for wilderness designation are of different physical character and have less wilderness quality than the area recommended for wilderness designation. The 600 acres are open grassland while the majority of the area recommended for wilderness is mountainous, forested terrain. The open grassland area does not provide the same degree of solitude offered by the more diverse vegetation and landform of the area recommended for wilderness particularly in light of the close proximity of the 600-acre area to the adjacent county road and privately-owned ranch facilities.

A vehicle way used daily for access to the ranch facilities during the grazing season was utilized to form the boundary between the area recommended for wilderness and that recommended for non-wilderness. The recommendation was made to allow for continued unrestricted use of this way that has been the historical access to the ranch facilities. This way forms a recognizable boundary for the wilderness area and is located in the area where the character of the WSA changes from mountainous to flatter open terrain.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The majority of the WSA is natural. The mountainous terrain and timber tend to screen man-made developments that are in the WSA, making their impact very site-specific. The human impacts which exist in the WSA consist of rangeland developments (3 dirt tanks, 1 nonfunctional windmill, 1/4 mile of pipeline, 4 3/4 miles of fence), 7 miles of vehicle ways, and the evidence of past logging operations which cover about 275 acres. The old logging access routes, which are the most noticeable of these impacts, would generally return to a natural condition under wilderness management. Because of good logging practices and the more than 20 years that have elapsed since operations ceased, the past logging does not significantly reduce the apparent naturalness of the WSA.

Approximately 600 acres in the southwestern portion of the WSA are open grassland. This area is adjacent to a county road, fence line, and ranch house and is crossed by an access route to the West Horse Mountain Ranch Headquarters. These impacts are not well screened by topography or vegetation and reduce the apparent naturalness of this portion of the WSA.

Solitude

Horse Mountain rises over 2,500 feet above the Plains of San Augustin. This elevation difference enhances the feeling of remoteness from the few human activities outside the WSA which are visible from the mountain. In most of the WSA, the rugged topography, with its forested ridges and valleys, provides outstanding opportunities for solitude which might not otherwise be so abundant in a WSA of this size. Solitude values on the 600 acres on the south end of the WSA are of lower quality. The area is more open and there are regular activities occurring on the adjacent county road and at ranch operations on adjacent private land.

Primitive and Unconfined Recreation

The rugged mountain environment, with its ponderosa pine forest and numerous small meadows, provides an outstanding setting for hiking, camping, photography, and other forms of backcountry recreation. Deer hunting accounts for most of the current recreational use in the WSA with other uses limited by the lack of legal access, distance from population centers, and limited public

knowledge of the area. Horse Mountain also provides opportunities for zoological sightseeing of such wildlife species as large raptors, elk, deer, black bear, and mountain lion.

The scenic vistas, forested mountain environment, and interesting geologic features on Horse Mountain result in outstanding hiking and camping opportunities. These opportunities are limited only by the lack of recreational water sources.

Special Features

Wildlife and scenic values are significant special features of Horse Mountain. Wildlife values include habitat for large raptors such as golden eagles, wintering bald eagles, prairie falcons, and possibly peregrine falcons. The forested mountain environment also supports deer, elk, mountain lion, black bear, and javelina.

Scenic values are derived from the more than 2,500-foot difference in elevation between the summit of Horse Mountain and the surrounding Plains of San Augustin. This results in vistas which can extend for over 100 miles on a clear day. Scenic values are also enhanced by the mixed ponderosa pine and oak stands and interesting geological features, such as scenic pinnacles, found on the mountain.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: The Horse Mountain WSA is within the Upper Gila Mountains Forest Province. The potential natural vegetation (PNV) is 2,462 acres of ponderosa pine/Douglas fir forest, 1,970 acres of pinyon/juniper woodland, and 600 acres of grama/galleta steppe. Wilderness designation of this WSA would add examples of these three ecosystems to the National Wilderness Preservation System (NWPS). The ecosystem information is summarized in Table 2.

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Upper Gila Mountains Forest Province				
Ponderosa Pine/Douglas Fir Forest	10	567,609	1	4,945
Juniper/Pinyon Woodland	12	447,438	6	99,393
Grama/Galleta Steppe	1	87,906	2	56,704
New Mexico				
Upper Gila Mountains Forest Province				
Ponderosa Pine/Douglas Fir Forest	5	531,499	1	4,945
Juniper/Pinyon Woodland	2	220,865	3	51,032
Grama/Galleta Steppe	1	87,906	2	56,704

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	700,161
Las Cruces	14	1,192,386	35	777,332

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of Albuquerque and Las Cruces, New Mexico. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within a 5-hour drive of these population centers.

Balancing the geographic distribution of wilderness areas

The Horse Mountain WSA would slightly contribute to balancing the geographic distribution of areas within the National Wilderness Preservation System (NWPS). In a clockwise direction, the Withington, Apache Kid, Aldo Leopold, Gila, Blue Range, West Malpais, and Cebolla Wilderness Areas are all within a 50-mile radius of Horse Mountain. These areas total approximately 960,000 acres.

Manageability

The Horse Mountain WSA could be managed to preserve the wilderness values which presently exist. Manageability is a judgment made by the BLM after considering such factors as: private and State inholdings, valid existing rights, topography, and the overall land ownership pattern.

The "topographic island" character of Horse Mountain enhances wilderness management. The absence of private or State inholdings and private mineral rights within the WSA adds to the BLM's ability to manage the area as wilderness. The WSA has been segregated from appropriation under the mining laws since 1970, and there are no mining claims in the WSA.

Grandfathered livestock operations in the WSA are compatible with wilderness management. Required access for ranch operations would not create problems for wilderness management.

The isolated mountain character of Horse Mountain results in a WSA with good physiographic integrity. Administrative conflicts were a concern in approximately 600 acres of open rangeland. This area is impacted by an access route to a ranch house and a pipeline and is adjacent to a fence line, county road, and ranch house. These impacts significantly reduce the perception of naturalness of this portion of the WSA.

Energy and Mineral Resource Values

In 1984 and 1985, the USGS and the U.S. Bureau of Mines conducted a mineral resource appraisal of the Horse Mountain WSA. This wide-ranging study included an examination of geologic, geochemical, and geophysical data, as well as a review and assessment of local mining activity. The following is a summary of their findings.

There are no identified (known) mineral resources in the WSA. No mines, prospects, or mineralized areas were located during investigations by the Bureau of Mines. No mining claims or mineral leases are recorded in the WSA. Based on these findings and on geophysical and geochemical evidence, the mineral resource potential for base and precious metals is low.

Based on the presence of favorable source and reservoir rocks which crop out at the base of Horse Mountain, the WSA as well as the entire San Augustin Plains is noted as having moderate resource potential for oil and gas. In 1987, a wild cat test well was drilled approximately 1 mile west of the WSA. This well resulted in a dry hole.

Impacts on Resources

A comparative summary of impacts by alternative for the Horse Mountain WSA is shown on Table 4. This information is taken from the Final EIS.

Local Social and Economic Considerations

No local social or economic issues were identified in the New Mexico Statewide Wilderness Study; therefore, this topic is not discussed in this document.

Summary of WSA - Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Horse Mountain area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). Opposition to wilderness designation of Horse Mountain during the inventory phase came from livestock interest groups and many citizens of Catron County. Reasons for this opposition included: "The area doesn't appear natural due to the presence of rangeland developments and past logging"; "any addi-

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (5,032 Acres Suitable)	No Wilderness (0 Acres Suitable)	Amended Boundary (Proposed Action; 4,432 Acres Suitable)
Impacts on Wilderness Values	The WSA's forested mountains and numerous small meadows, opportunities for solitude, hiking, camping, and mule deer hunting would be maintained. Preservation of raptor, mule deer, elk, mountain lion, and black bear habitat would result from wilderness designation. In addition, potential habitat for 4 rare plant species would be protected.	Naturalness and outstanding opportunities for solitude would be maintained in the short-term. However, these values would be lost in the long-term as a result of rangeland management actions, woodcutting, and continued vehicular access for hunting and other forms of recreation.	Same as All Wilderness Alternative. Naturalness would be affected on 600 acres released due to oil and gas exploration. Up to 5 acres would be disturbed. Potential problems of access to the West Horse Mountain Ranch Headquarters would be eliminated.

tional wilderness in Catron County will impede economic progress in this underdeveloped area"; and "the small size of the Unit reduces its value as wilderness."

Support for wilderness designation came from recreational users and those interested in preserving the natural values of the area. Reasons cited included: the biological diversity present in this "island" ecosystem, the outstanding scenic and recreational qualities, and the lack of resource conflicts or values foregone by wilderness designation.

Wilderness Study Comments

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985), BLM received 465 comments in the form of letters and testimony at hearings. A total of 340 commenters recommended wilderness designation of the entire WSA. Sixteen public inputs were received which specifically addressed the Horse Mountain WSA. Thirteen commenters favored wilderness designation and three opposed designation.

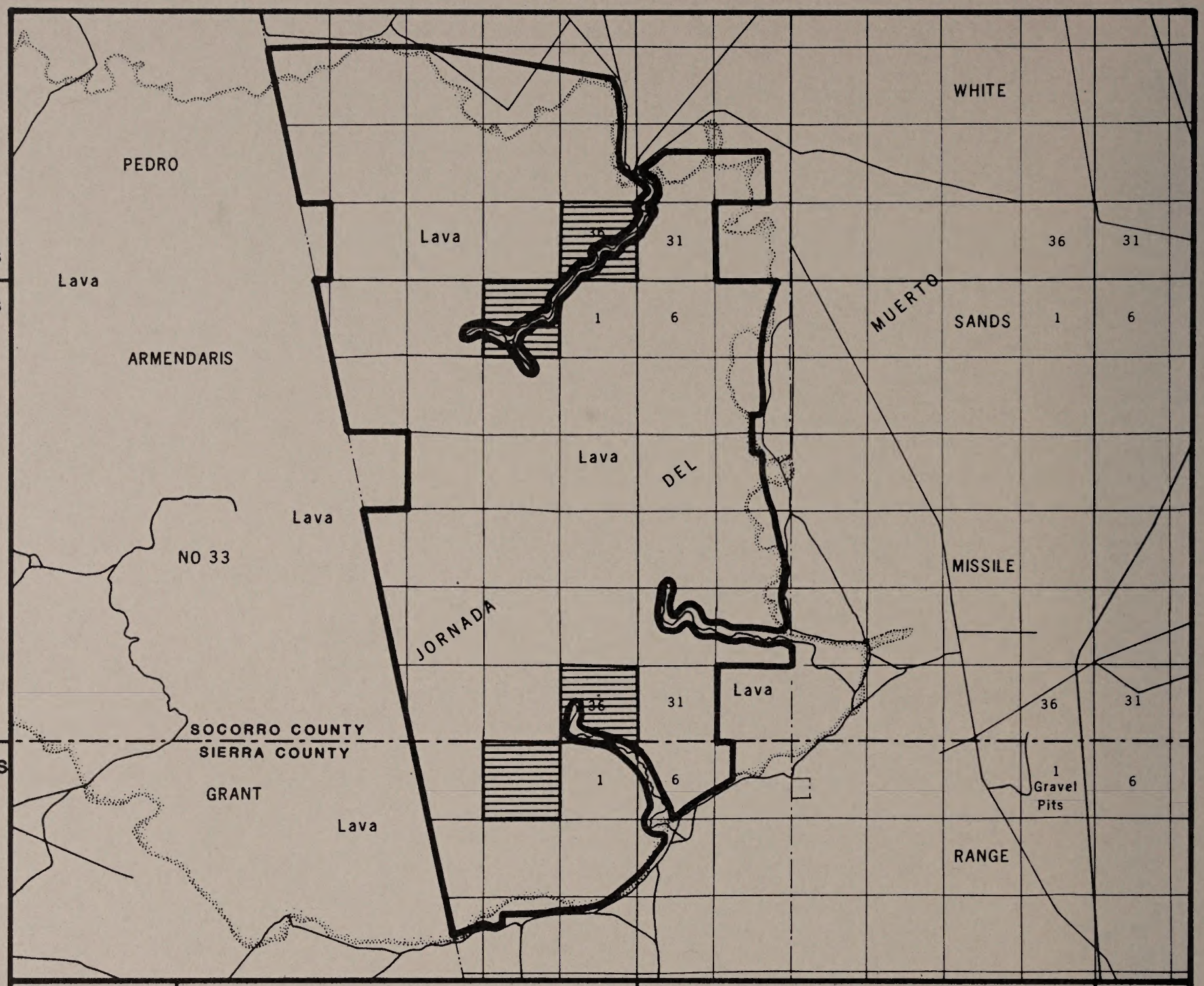
During the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), specific comments on the Horse Mountain WSA by 15 commenters, with all in favor of wilderness designation.

Specific comments supporting wilderness designation listed these reasons in support of the Horse Mountain areas as wilderness: the value of wilderness values outweighs the value of other resources; the Nation needs more wilderness; protection of unique ecosystems; designation will not adversely impact other resources; area favored, but boundaries should be enlarged; high scenic values, high recreational values.

Comments opposed to wilderness designation stated that the area was too small and the minerals industry would be impacted.

JORNADA DEL MUERTO WILDERNESS STUDY AREA

MAP 1



RECOMMENDED FOR WILDERNESS

RECOMMENDED FOR NONWILDERNESS (None)

LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS (None)

SPLIT ESTATE (None)

STATE

PRIVATE (None)

0 1 2
MILES

Jornada Del Muerto Proposal

NM-020-055

April 1990

JORNADA DEL MUERTO
WILDERNESS STUDY AREA

THE STUDY AREA – 31,147 Acres

The Jornada del Muerto (Journey of Death) Wilderness Study Area (WSA), NM-020-055, is located in Socorro and Sierra Counties, approximately 45 air miles south-southeast of Socorro, New Mexico. The WSA contains 31,147 acres of Bureau of Land Management land. There are 2,560 acres of State land within the WSA boundary. (See Table 1 for land status and acreage summary of the study area.)

The northern boundary of the WSA is bordered by a dirt access route, while the western boundary is bordered by private land. A county road generally forms the eastern and southern boundaries of the WSA.

The Jornada del Muerto WSA is comprised almost totally of a lava flow, characterized by lava tubes, sink holes, pressure ridges, and other related volcanic features. Many of these structures have been silted in by fine windblown sand and clay materials. The surface of the WSA varies from deep sand on its fringes to continuously undulating, jagged, and fractured lava rock in the interior. Elevations range from 4,700 feet to 4,900 feet.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. Two alternatives for the Jornada del Muerto WSA were analyzed in the EIS: an all wilderness alternative and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

31,147	Acres recommended wilderness
0	Acres recommended nonwilderness

The recommendation for this WSA is to designate the entire area as wilderness (see Map 1). This recommendation is based on the area's high quality wilderness values, special geologic features, wildlife and scientific values, lack of other resources uses, and ease of wilderness manageability. The recommendation is the environmentally preferable alternative as it will result in the least change to the natural environment over the long-term. This recommendation for wilderness will further apply to any additional inholding acreage acquired through purchase or exchange with willing owners. Appendix 1 lists all inholdings and provides additional information on acquisition of inholdings.

The Jornada del Muerto WSA contains exceptional wilderness values of naturalness, solitude, and primitive and unconfined recreation. The WSA lies in one of the most remote, little visited, regions of New Mexico. Its vast rugged landscape, surrounded by grassland desert, offers opportunities for hiking, photography, sightseeing, and nature study. The WSA is well suited to late fall and winter recreational use.

The area also contains unique geologic features characteristic of large lava flows including lava tubes, sink holes, pressure ridges, and other related features.

The recommended area provides significant habitat for pronghorn antelope, raptors, and bats. The pronghorn antelope are relatively abundant in the area. The most common raptor species is the Swainson's hawk, but golden eagles, red-tailed hawks, and marsh hawks are also frequently sighted. A significant colony of Mexican free-tailed bats roost approximately 5 miles west of the WSA on private land.

A phenomenon peculiar to lava flows is that many animals living on them exhibit melanism or protective dark coloration. A variety of melanistic species of lizards and melanistic western diamond-backed rattlesnakes have been found in the WSA.

The conflicts with other uses of lands recommended for designation within this WSA are limited. Grazing use will be allowed to continue. Facility maintenance requirements are minimal. There are no new livestock management projects proposed.

The WSA was originally rated by BLM Geologists as having a moderate potential for the occurrence of oil and gas. However, this rating has been changed to low by the U.S. Geological Survey (USGS) and Bureau of Mines.

The wilderness management potential of the WSA in terms of effectively precluding vehicular access is excellent. Off-road vehicle (ORV) use is limited by

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	31,147
Split-Estate (BLM Surface Only)	0
Inholdings	2,560
Total	33,707
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	31,147
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	31,147
Inholdings	2,560
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	0
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	0
Inholdings	0

the rugged nature of the volcanic landscape. Motorized use could be effectively controlled on the three cherry-stem roads which penetrate the area.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The imprints of man within the core of the WSA are minimal. Intrusions within the WSA boundary consist of 8 miles of grazing allotment boundary and interior pasture fences. Three windmills, an earthen stock tank, 4 1/2 miles of buried water pipeline, and 5 drinking troughs are located on State and BLM lands that have been cherry-stemmed out of the WSA. Overall, the naturalness values of the interior of the WSA are of high quality.

The boundaries of the WSA are impacted by 25 miles of fences and 2 1/2 miles of buried pipeline with 3 drinking troughs; these developments are technically outside the WSA boundary. The concentration of rangeland developments along the WSA's periphery only slightly detracts from the general high quality of the area's naturalness values. The 5 miles of cherry-stemmed roads are, for the most part, screened by topography.

Solitude

The Jornada del Muerto WSA offers outstanding opportunities for solitude. The WSA lies in one of the most remote, little visited regions of central New Mexico. It is a vast, rugged lava landscape surrounded by grassland desert and scenic distant mountain ranges.

Primitive and Unconfined Recreation

Opportunities for primitive and unconfined types of recreation exist within the WSA. The pristine nature of the environment ensures a sense of freedom and unrestricted movement. The rugged lava flow provides an unusual expanse of isolated desert ideally suited for fall and winter recreational use. Nature study, hiking, photography, wildlife observation, and sightseeing are the primary opportunities available.

A significant bat cave is located outside the southwestern edge of the WSA on private land. Additionally, the WSA provides opportunities for scientific study. The area appears capable of continuing to provide outstanding opportunities for these activities in the foreseeable future.

Special Features

The Jornada del Muerto contains special ecological and geological features. The WSA is comprised almost entirely (approximately 95 percent of the area) of a lava flow characterized by lava tubes, sink holes, pressure ridges, and other related volcanic features. Unusually large soaptree yucca, up to 30 feet tall, are found on the periphery of the WSA.

A variety of lizards and the western diamond-backed rattlesnakes found in the Jornada del Muerto WSA exhibit melanism or dark protective coloration; a phenomenon peculiar to lava flows.

Miles of long, sweeping desert vistas abound in the Jornada del Muerto area. Landscape contrasts between the dark rocky lava flow joining the surrounding light colored desert present an interesting landscape mosaic.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems: The Jornada del Muerto WSA lies within the Chihuahuan Desert Province with a potential natural vegetation (PNV) of grama/tobosa shrubsteppe. However, the WSA's Chihuahuan Desert associations are strongly influenced by the unique edaphic, hydrological, and structural characteristics of the lava flow. For ex-

ample, soaptree yucca, approaching 30 feet in height, occur along the periphery of the WSA. Wilderness designation would add this ecosystem, which is currently represented in the National Wilderness Preservation System (NWPS) by only two areas, totalling 39,907 acres. This information is summarized in Table 2.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of Albuquerque, Las Cruces, and Santa Fe, New Mexico, and El Paso, Texas. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within a 5-hour drive of these population centers.

Table 2: Ecosystem Representation

	NWPS Areas		Other BLM Studies	
Bailey-Kuchler Classification	Areas	Acres	Areas	Acres
Province/Potential Natural Vegetation				
Nationwide				
Chihuahuan Desert Province				
Grama/Tobosa Shrubsteppe	2	39,907	16	157,829
New Mexico				
Chihuahuan Desert Province				
Grama/Tobosa Shrubsteppe	2	39,907	16	157,829

Table 3: Wilderness Opportunities for Residents of Major Population Centers

	NWPS Areas		Other BLM Studies	
Population Centers	Areas	Acres	Areas	Acres
New Mexico				
Albuquerque	26	1,762,638	31	674,046
Las Cruces	14	1,192,386	35	751,487
Santa Fe	21	1,422,038	23	365,060
Texas				
El Paso	12	1,126,112	25	593,906

Balancing the geographic distribution of wilderness areas

Designating the Jornada del Muerto WSA as wilderness would contribute to balancing the geographic distribution of wilderness. The nearest designated U. S. Forest Service wilderness areas are: San Pascual, 5 miles to the north; Apache Kid, 40 miles west; and Withington, 40 miles northwest.

Manageability

The Jornada del Muerto WSA is manageable as wilderness. This judgment was made after considering such factors as valid existing rights, the White Sands Missile Range (WSMR) Aerobee 350 Safety Evacuation Zone, and State inholdings.

Livestock management, including required access for maintenance of existing rangeland developments, is not expected to create conflicts with wilderness management. With the exception of fences that do not have existing vehicular access, all rangeland developments within the WSA are located along cherry-stemmed roads. If the WSA is designated wilderness and the State inholdings and cherry-stemmed lands are acquired by BLM through exchange, the cherry-stemmed roads could be closed to improve manageability of the area. If the roads were closed, motorized access to maintain the rangeland development projects would be allowed.

WSMR requires reasonable access to the Safety Evacuation Zone to recover missile debris. However, these access needs are not expected to create serious wilderness management problems because only one missile impact is known to have occurred in the WSA in the past 24 years. The recovery of that debris did not significantly alter the natural values of the WSA.

The wilderness management potential of the WSA in terms of effectively precluding vehicular access to the area is excellent. ORV use is limited by the rugged nature of the volcanic landscape. Although several cherry-stemmed roads extend into the area, access to them could be effectively closed to use by the general public. Manageability would also be enhanced by the future acquisition, through voluntary exchange, of State land within the Jornada del Muerto WSA. This would include up to 2,560 acres of State land within the WSA boundaries and would result in virtually the entire lava flow being managed as wilderness.

Energy and Mineral Resource Values

In 1985, the USGS and the U.S. Bureau of Mines conducted a mineral resource appraisal of the Jornada del Muerto WSA. This wide-ranging study included an examination of geologic, geochemical, and geophysical data, as well as a review and assessment of local mining activity. The following is a summary of their findings.

There has been no mineral production in the WSA, and no leasable or locatable mineral deposits are known. The WSA has low mineral resource potential for metals, including sedimentary uranium, geothermal energy, oil and gas, and magmatic segregates of gem-quality olivine. The northwest and southwest parts of the WSA have moderate potential for undiscovered sand resources.

There are no mineral leases or mining claims in the WSA.

Impacts on Resources

A comparative summary of impacts by alternative for the Jornada del Muerto WSA is shown on Table 4. This information is taken from the Final EIS. However, since the Final EIS was released, new information concerning the potential for the occurrence of oil and gas was submitted to BLM by the USGS and Bureau of Mines. Because oil and gas was an issue in the Final EIS, this table has been revised to include the updated information.

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (Proposed Action; 31,147 Acres)	No Wilderness (0 Acres Suitable)
Impacts on Wilderness Values	The existing natural appearance of the lava flow would be maintained. Outstanding opportunities for solitude, hiking, camping, and photography, and special features of melanistic wildlife species would be maintained.	Due to the downgrading of the area's energy mineral resource potential from moderate to low by the USGS, mineral exploration would not likely occur; therefore, there would be no impact from this activity. Continued livestock grazing, associated vehicle access, and installation of new rangeland improvements would degrade naturalness by 10 percent in the long-term.
Impacts on Oil and Gas Exploration and Development	Opportunities to explore an area of 31,100 acres would be foregone. While the BLM Geologists had given the WSA a moderate potential rating for the occurrence of oil and gas, a 1986 report published by the USGS and Bureau of Mines downgraded the BLM's evaluation of oil and gas potential which was identified in the Final EIS. The resource potential for oil and gas is now considered to be low, therefore, this is no longer considered an issue.	No significant impacts.

Local Social and Economic Considerations

No local social or economic considerations were identified in the New Mexico Statewide Wilderness Study; therefore, this issue is not discussed in this document.

Summary of WSA - Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Jornada del Muerto area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). During the inventory phase, public response was generally in favor of wilderness study. Reasons cited have emphasized the WSA's outstanding solitude, natural, recreation, and supplemental values. Also, the area meets the size criterion and intrusions are not substantially noticeable or they are expected to rehabilitate.

Opposition was expressed by area permittees who felt that wilderness designation would adversely impact their ranch operations.

WSMR personnel expressed concern that designation of the Jornada del Muerto as wilderness could potentially conflict with military operations within the Aerobee 350 Safety Evacuation Zone.

Wilderness Study Comments

During the public comment period on the *Draft Environmental Assessment Socorro District Wilderness* (1983), 27 letters were received. Five respondents were opposed to wilderness designation, while 22 respondents supported wilderness designation for the Jornada del Muerto WSA.

These comments revealed substantial disagreement with the BLM's initial assessment of the WSA. The disagreements centered primarily around BLM's assessment of the manageability problems resulting from WSMR's needs and activities in the Aerobee 350 Safety Evacuation Zone. There were also differences of opinion regarding the attractiveness and recreational opportunities offered by the WSA.

Concern was expressed by WSMR and others that wilderness designation would increase the low levels of visitor use which presently occur in the area, thereby increasing safety and security problems in the Aerobee 350 Evacuation Zone.

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commenters supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition. Alternative W included the Jornada del Muerto and recommended wilderness designation for the entire WSA as well as additional adjacent land. Specific comments were directed to the Jornada del Muerto WSA by 13 commenters; of which 11 supported wilderness designation and 2 opposed.

During the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), specific comments were directed to the Jornada del Muerto WSA by 25 commenters. Twenty-three commenters favored wilderness designation and two opposed it. The New Mexico BLM Wilderness Coalition recommended adding two sections of private land to the wilderness recommendation. This action would add the crater source of the lava flow and the tube containing the bat population to the WSA.

Appendix 1: Estimated Costs of Acquisition of Non-Federal Holdings Within the Jornada del Muerto WSA[1]

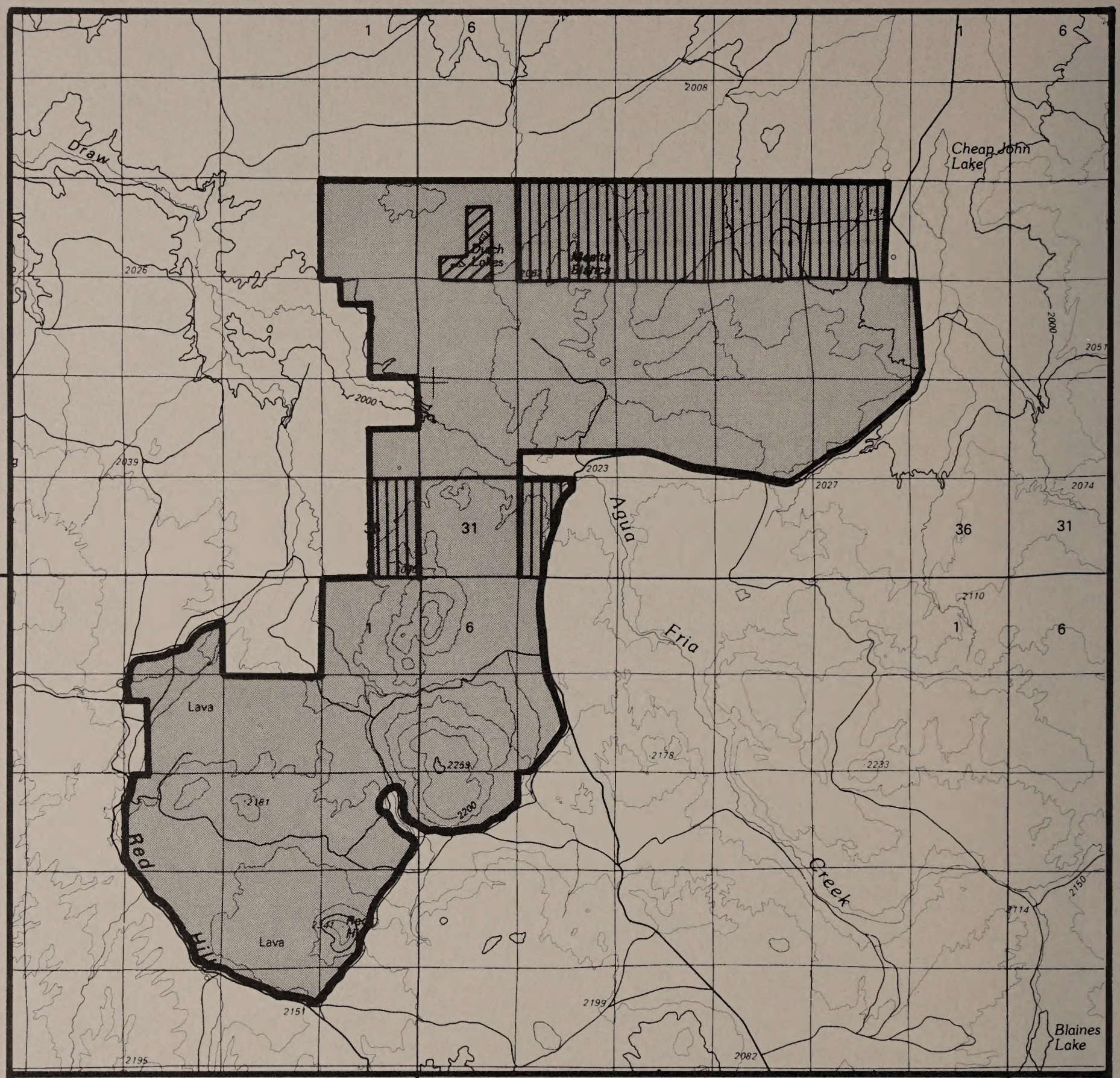
Legal Description (Prior to any Subdivision)	Total Acres	Number of Owners	Type of Ownership by Estate (BLM/ State/ Private) Surface Estate	Subsurface Estate	Proposed for Acquisition (Yes/No)	Preferred Method of Acquisition (Purchase/ Exchange/ Donation)	Estimated Costs of Acquisition[2] Land Costs	Processing Costs
Parcel #1, Sec. 36, T. 8S, R. 1E	640	1	State	State	Yes	Exchange	NA	$6,400
Parcel #2, Sec. 2, T. 9S, R. 1E	640	1	State	State	Yes	Exchange	NA	$6,400
Parcel #3, Sec. 36, T. 9S, R. 1E	640	1	State	State	Yes	Exchange	NA	$6,400
Parcel #4, Sec. 2, T. 10S, R. 1E	640	1	State	State	Yes	Exchange	NA	$6,400

[1] The estimated costs listed in this appendix in no way represent a formal appraised value of the land or mineral estate, but are rough estimates based on sales or exchanges of lands or mineral estates with similar characteristics to those included in the WSA. The estimates are for purposes of establishing a range of potential costs to the government of acquiring non-Federal holdings and in no way represent an offer to purchase or exchange at the cost estimate included in this appendix.

[2] Where exchange is the proposed acquisition method, only administrative costs of processing the exchange are shown. Processing costs are all miscellaneous expenses other than land costs. These would include work month costs, appraisals, title work, escrow costs, etc. Where direct purchase is proposed, an estimate of both the land costs and the processing costs is provided.

MESITA BLANCA
WILDERNESS STUDY AREA

MAP I



RECOMMENDED FOR WILDERNESS (None)

RECOMMENDED FOR NONWILDERNESS

LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS (None)

SPLIT ESTATE

STATE (None)

PRIVATE

N

0 1 2

MILES

Mesita Blanca Proposal

NM-020-018

April 1990

MESITA BLANCA
WILDERNESS STUDY AREA

THE STUDY AREA – 19,414 acres

The Mesita Blanca Wilderness Study Area (WSA), NM-020-018, is located in western Catron County, approximately 110 air miles northwest of Socorro, New Mexico. The WSA includes 19,414 acres of Bureau of Land Management (BLM) lands (see Table 1). The WSA is bounded on the north and west by private land and on the south and east by a County road.

The Mesita Blanca WSA is a flat to rolling grassland broken by isolated sandstone and basalt mesas, which are characterized by vertical cliffs and broken topography. The dominant topographic feature and highest point in the WSA is the Red Hill Cinder Cone and its associated 2,000 acre lava flow. Elevations in the WSA range from 6,400 feet to 7,679 feet.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *Final New Mexico Statewide Wilderness Environmental Impact Statement* (EIS). The EIS was filed in February 1988. There were three alternatives analyzed in the EIS: an All Wilderness Alternative, an Amended Boundary Alternative, and a No Wilderness Alternative. The No Wilderness Alternative, the recommendation for this WSA, would release 19,414 acres for uses other than wilderness.

RECOMMENDATION AND RATIONALE

0	Acres recommended wilderness
19,414	Acres Recommended nonwilderness

The recommendation for this WSA is to release 19,414 acres for uses other than wilderness (see Map 1). While the WSA contained the wilderness values necessary for study, they are not considered to be of a quality to merit the area's inclusion in the National Wilderness Preservation System.

The All Wilderness Alternative is the environmentally preferred alternative as its implementation would result in the least change to the natural environment over the long-term. The recommendation, while not the environmentally preferred, will be implemented in a manner which would use all practical means to avoid or minimize environmental impacts. For example, nonwilderness management of that portion of the WSA which possesses the highest values has been identified in the 1989 Socorro Resource Management Plan (RMP). The RMP identified 2,250 acres in the southeast portion of the WSA as part of the 10,770 acre Agua Fria Special Management Area (SMA). This SMA was identified to protect raptor habitat, recreational opportunities, geologic and

scenic values. Protective management prescriptions for this area include: limiting vehicle use to existing roads and trails; closing the area to woodcutting; and restricting all rights-of-way authorizations and mineral material sales in the SMA. These administrative management controls are expected to protect the most valuable characteristics of the WSA.

If any mineral development were to occur, it is expected to result in the enlargement of an existing New Mexico State Highway Department cinder pit in the extreme southern portion of the WSA. This deposit is composed of excellent cinders and has good access. Impacts resulting from cinder extraction are anticipated to occur in the vicinity of the Red Hill Cinder Cone, which has been previously disturbed.

The WSA generally appears natural but there are several site-specific signs of man, primarily rangeland and watershed developments, which impact naturalness locally. Solitude opportunities available in the WSA are similar to those afforded by thousands of acres of BLM administered land located in west central New Mexico. These solitude opportunities are due to the remoteness and general lack of human activity in this part of New Mexico and are not due to any intrinsic values unique to the WSA.

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	16,429
Split-Estate (BLM Surface Only)	2,985
Inholdings	160
Total	19,754
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	0
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings	0
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	16,429
Split-estate (BLM Surface Only)	2,985
Total BLM Land Not Recommended for Wilderness	19,414
Inholdings	160

During the wilderness inventory, the Mesita Blanca WSA was not found to possess outstanding opportunities for primitive recreation because the terrain and vegetation are common throughout the region.

Significant high density cultural sites are located in the northern portion of the WSA. They are considered eligible for nomination to the National Register of Historic Places.

With the exception of possible cinder extraction, at the present time there is no known threat to the existing naturalness of the area. There are no other projected activities, no known mineral potential, and no valid existing rights in the WSA. Therefore, even without wilderness designation, the quality and level of values now found in the WSA are not expected to significantly change.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The apparent naturalness of the Mesita Blanca WSA is Impacted primarily by rangeland developments, watershed control structures, and cinder extraction. These impacts are not typically screened by topography or vegetation and many are visible over a wide area in the WSA.

The Mesita Blanca WSA contains 10 livestock watering structures (dirt tanks and drinking troughs), 7 miles of buried pipeline, and 16 1/2 miles of fences. Access to these rangeland developments is provided by approximately 21 1/2 miles of vehicle ways.

Most human impacts in the Mesita Blanca WSA result from watershed developments and ranch operations. Some of the access routes would be closed and would return to a natural condition as a result of wilderness management. Many of the routes would continue to be used occasionally by the permittee to perform necessary maintenance of rangeland developments and by recreationists. These routes would continue to be visible, but would become less of an impact due to reduced motor vehicle use under wilderness management. Cinder development from a pit adjacent to the southwestern portion of the WSA has reduced the naturalness of this area.

The cumulative effects of the cinder development, rangeland developments, watershed structures, and the general lack of topographic and vegetation screening are considered to greatly reduce the level of perceived naturalness in the Mesita Blanca WSA.

Solitude

The size and configuration of the WSA would partially allow users to find secluded spots. Because of the open character of much of the WSA, opportunities for solitude would be highest in areas with some degree of topographic and vegetation screening. Those areas would be found in isolated locations primarily in portions of the lava flow from the Red Hill Cinder Cone and along the bases of the isolated mesas which occur in the WSA. The mesa tops and the Cinder Cone itself, because of a greater visibility, would offer less chance of avoiding the evidence of human activities both inside and outside the WSA.

Outside sights and sounds affect the feeling of solitude in portions of the Mesita Blanca WSA. The WSA is bordered on two sides by County roads. A 345kv transmission line is located west of the WSA and is visible from higher points in the WSA as is a smaller transmission line, which is cherry-stemmed about 1/2 mile into the east side of the WSA. Large erosion control dams and an abandoned gravel pit along the eastern boundary also reduce the feeling of being alone. Solitude could further be reduced with future coal development north of the WSA due to increased human activity in the WSA.

Primitive and Unconfined Recreation

During the wilderness inventory, the Mesita Blanca WSA was not found to possess outstanding opportunities for primitive recreation. Opportunities for primitive or unconfined recreation were not considered outstanding in the WSA because the terrain in the WSA is common to the region and it lacks the visual interest of lands to the north and east. The opportunities for recreation that do exist in the WSA consist primarily of geologic sightseeing, hiking around the Red Hill Cinder Cone and lava flow, rockhounding, and deer hunting. There is little known recreation use in the WSA other than around the Red Hill Cinder Cone.

Special Features

Archaeological resources in the WSA are considered significant. The WSA contains a high density of archaeological sites representing human habitation from archaic to historic times. Seven recorded sites in the WSA are considered eligible for nomination to the National Register of Historic Places.

The WSA also has geological special features. The 500-foot high Red Hill Cinder Cone is a dominant feature in the landscape of the region. It represents a classic volcanic cinder cone and lava flow. The lava flow covers approximately 2,000 acres and contains numerous interesting lava features.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The Mesita Blanca WSA is within the Colorado Plateau Province with a potential natural vegetation (PNV) of 5,787 acres of pinyon/juniper woodland and 13,627 acres of grama/galleta steppe. There are several existing wilderness areas which contain both PNV types both in New Mexico and nationwide. This information is summarized in Table 2.

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Colorado Plateau Province				
Juniper/Pinyon Woodland	10	139,367	87	2,090,055
Grama/Galleta Steppe	8	164,365	12	77,463
New Mexico				
Colorado Plateau Province				
Juniper/Pinyon Woodland	2	39,907	16	180,296
Grama/Galleta Steppe	6	105,255	12	77,463

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time from Albuquerque and Santa Fe, New Mexico. Table 3 summarizes the number and acreages of designated areas and other BLM study areas within 5-hours driving time of these population centers.

Balancing the geographic distribution of wilderness areas

Designating the Mesita Blanca WSA as wilderness would slightly contribute to balancing the graphic distribution of wilderness. Several designated wilderness areas are within approximately 50 miles of the WSA. In a clockwise direction, they are the West Malpais, Cebolla, Blue Range, and Escudilla wilderness areas. These areas total approximately 135,000 acres.

Manageability

Several factors potentially affect the capability of the Mesita Blanca WSA to be managed as wilderness: boundary configuration, inholdings, and maintenance of rangeland and watershed developments.

An awkward boundary configuration and a lack of readily identifiable terrain features to delineate the boundary or to provide natural barriers to off-road vehicle travel would require combination of fencing and a system of signs and cairns to delineate the boundaries of the wilderness areas in order to reduce trespass problems. Administrative costs would be moderate and frequent patrols would be required.

At this time, private surface inholdings in the Mesita Blanca WSA would not pose serious problems for wilderness management. There is a 160-acre private inholding which could require reasonable access. This access could affect wilderness values and result in wilderness management problems.

The maintenance of grandfathered rangeland developments is to expected to create serious manageability problems, but would result in the continued existence of human impacts (rangeland developments) and reduced opportunities for solitude in portions of the WSA.

Approximately 2,985 acres of split-estate, non-Federally owned subsurface minerals is also a manageability concern. Should development of these subsurface mineral resources occur, management to maintain wilderness values could not be ensured.

The Mesita Blanca WSA could be managed to preserve its low quality wilderness values over the long-term. Potential conflicts with wilderness management could occur should reasonable access be requested and allowed to the private land or to develop subsurface mineral resources.

Table 3: Wilderness Opportunities for Residents of Major Population Centers

	NWPS Areas		Other BLM Studies	
Population Centers	Areas	Acres	Areas	Acres
New Mexico				
Santa Fe	21	1,422,038	23	376,793
Albuquerque	26	1,762,638	31	685,779

Energy and Mineral Resource Values

The Mesita Blanca WSA is classified by BLM Geologists as having low potential for energy and mineral resource values, with the exception of cinders.

Although no oil and gas drilling has occurred within the WSA, three dry wells have been drilled locally since 1950. Any positive shows of oil and gas in the region could stimulate exploration attempts within the WSA. The oil and gas potential is considered low.

Private and government exploration in areas 15 to 20 miles northeast of the WSA have identified economic coal reserves within the Mesaverde group. Although the Mesaverde group occurs shallowly in much of the WSA, recent information indicates that the potential for economic coal deposits is low because, if present, the coal would occur in thin beds or at depth.

A New Mexico State Highway Department cinder pit has previously been active at the south-eastern base of Red Hill Cinder Cone, which lies just outside of the WSA. The prominent Red Hill Cinder Cone, which is within the boundary of the WSA, is composed of excellent cinders and has good access. This deposit would be an excellent source of cinders. The potential is considered high. There are other areas in the WSA that have moderate potential because of poor access and remoteness from potential cinder markets.

Impact on Resources

Table 4 summarizes the impacts on the significant environmental issues for each of the alternatives considered.

Local, Social, and Economic Considerations

No local, social, or economic considerations were identified in the New Mexico Statewide Wilderness Study; therefore, no further discussion of this topic will occur in this document.

Summary of WSA - Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Mesita Blanca area during the public review periods on the New Mexico Wilderness Study Area Proposals (March 1980) and the New Mexico Wilderness Study Area Decisions (November 1980). Public comment supported this recommendation (21 individual comments) on the basis the area is over 5,000 acres, meets the naturalness criteria, offers outstanding opportunities for both solitude and primitive recreation, and possesses supplemental values.

Opposition (5 individual comments) centered on the presence of range impacts in the area. Also, resource conflicts were cited as a reason against wilderness.

Wilderness Study Comments

During the public comment period on the *Draft Environmental Assessment Socorro District Wilderness* (BLM 1983), 19 letters and 52 coupons were received.

Fifteen letters and the coupons expressed disagreement with the nonsuitable recommendation. Among the reasons cited in support of designation were: the need to include more grassland and mesa environments in the National Wilderness Preservation System; the benefits of wilderness in wildlife; the presence of important archaeological resources; and the high geologic value of the Red Hill Cinder Cone.

Four letters expressed agreement with the nonsuitable recommendation. The WSA was felt to be nonsuitable due in large part to the degree of human impacts and probable future impacts from mineral activities. It was also felt that the area lacked out-

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (19,414 Acres Suitable)	No Wilderness (Proposed Action; 0 Acres Suitable)	Amended Boundary (9,300 Acres Suitable)
Impacts on Wilderness Values	The natural character of the cinder cone, lava flow, and opportunities for solitude and preservation of cultural resources would be maintained.	Over the long term, wilderness values would be adversely affected by mineral material sales, new rangeland and watershed developments, vehicle use and woodcutting. The impacts of these activities would degrade wilderness values on approximately 75 per cent of the WSA.	The natural character of the cinder cone and lava flow, and opportunities for solitude would be maintained. In the long term naturalness in 10 to 20 per cent of the area not designated wilderness would be diminished as a result of road development.
Impacts on Cinder Development	No impact on sales in the short-term. In the long-term, mineral material sales would be precluded.	No impact	No impact on sales in the short-term. In the long-term, mineral material sales would be precluded on 9,300 acres but allowed on 10,114 acres.

standing opportunities for solitude and primitive recreation.

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (BLM 1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commentators supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico wilderness Coalition. Alternative W included the Mesita Blanca WSA and recommended wilderness designation for the entire WSA. Ninety-one individuals commented specifically on Mesita Blanca WSA and all 91 favored wilderness designation for the area. Reasons in support of wilderness include: high scenic and recreational values; boundaries should be enlarged; area meets wilderness criteria; wilderness would not impact other resources; will protect unique communities; and the nation needs more wilderness.

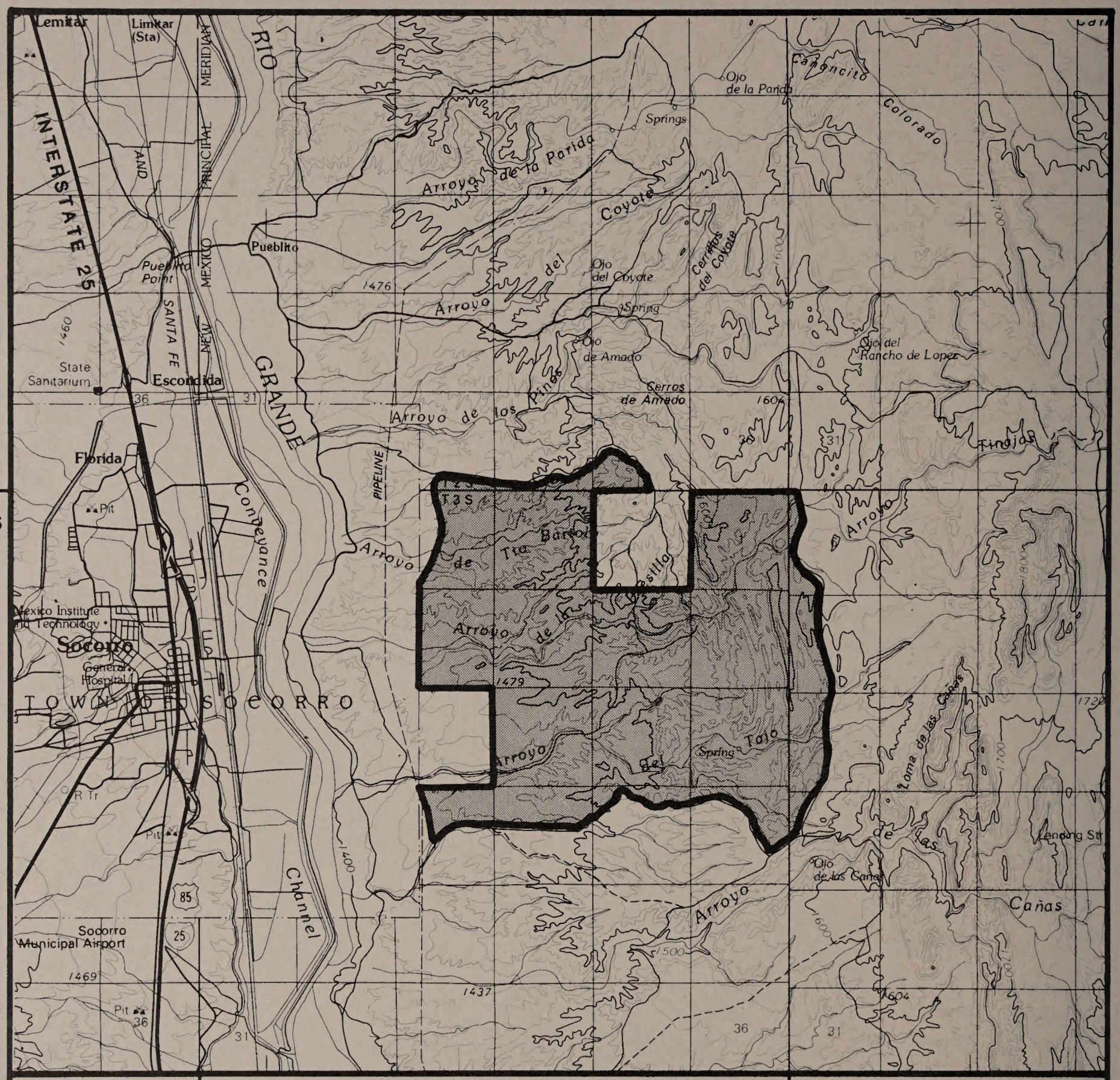
During public scoping on the split-estate issued held in early 1986, seven commenters specifically favored the addition of split-estate to the affected WSAs and five commenters opposed it.

During the public comment period on the *New Mexico Statewide Study: Revised Draft Environmental Impact Statement* (BLM 1986), 185 commenters supported the 1.88 million acre BLM wilderness coalition proposal and 62 commenters supported the Earth First! proposal. Both of these statewide proposals supported wilderness designation for this WSA. Specific comments were directed to the Mesita Blanca WSA by 15 commenters. All

but one supported wilderness designation. Reasons given in support of wilderness included: value of wilderness values outweighs other values; will protect other resources; will protect threatened and endangered species, unique ecosystems, and cultural values; boundaries should be enlarged; and the area has high scenic and recreational values. The one comment opposed wilderness designation because of impacts with other uses.

PRESILLA
WILDERNESS STUDY AREA

MAP I



RECOMMENDED FOR WILDERNESS (None)

RECOMMENDED FOR NONWILDERNESS

LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS (None)

SPLIT ESTATE (None)

STATE (None)

PRIVATE (None)

N

0 1 2

MILES

Presilla Proposal

NM-020-037

April 1990

PRESILLA
WILDERNESS STUDY AREA

THE STUDY AREA – 8,680 Acres

The Presilla Wilderness Study Area (WSA), NM-020-037, is located in Socorro County, approximately 2 miles east of Socorro, New Mexico. The WSA includes 8,680 acres of Bureau of Land Management (BLM) land. (See Table 1 for land status and acreage summary of the study area.) The Quebradas Road forms the eastern boundary of the WSA, while private land forms the western boundary. Roads also form the northern and southern boundaries of the WSA.

The western portion of the WSA contains mesa benchlands cut by large arroyos, while the eastern portion is dominated by limestone and sandstone hills, with low granitic ridges rising slightly above the surrounding terrain. Elevation varies from 4,700 feet to 5,450 feet.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide EIS was filed with the Environmental Protection Agency in February 1988. Two alternatives for the Presilla WSA were analyzed in the EIS: An all wilderness alternative and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

0	Acres recommended wilderness
8,680	Acres recommended nonwilderness

The Presilla WSA is not recommended for wilderness designation (see Map 1). The recommendation for the Presilla WSA is based on the quality of the area's wilderness characteristics and the area's moderate mineral resource potential. While the area contains the wilderness values necessary for study, they are not considered to be of a quality to merit inclusion in the National Wilderness Preservation System (NWPS).

The All Wilderness Alternative is the environmentally preferable alternative, as its implementation would result in the least change to the natural environment over the long-term. The recommendation, while not environmentally preferred, will be implemented in a manner which would utilize all practicable means to avoid or minimize environmental impacts. In particular, the BLM has designated 3,500 acres in the eastern half of the WSA as the Tinajas Area of Critical Environmental Concern (ACEC). The Tinajas ACEC was established by the BLM to protect the Arroyo

del Tajo Pictograph Site, a key feature of the WSA. This site consists of a unique assemblage of pigment-painted pictographs and interesting geologic formations and sinkhole features known as "Tinajas." The management goals for the Tinajas ACEC are to preserve and protect the pictographs for public interpretation, recreation, and scenic values. The BLM is currently in the process of withdrawing 1,500 acres within the Tinajas ACEC from locatable mineral entry. In addition, the BLM has closed a 2-mile route to motor vehicle use and will be restricting all rights-of-way authorizations and mineral material sales in the ACEC. This administrative management option protects the key features of the WSA, while allowing for the future opportunity to develop the mineral resources outside of the ACEC. The Presilla WSA contains moderate resource potential for geothermal, uranium, barite, fluorspar, lead, zinc, copper, and sand and gravel. Any mineral exploration and development activity will be regulated to prevent unnecessary and undue degradation.

The WSA marginally meets the naturalness criterion. Although the eastern and southwestern portions of the WSA generally appear natural, the central and northern portions have been cumulatively impacted by approximately 5 miles of vehicle routes, 10 miles of barbed wire fence, 8 mineral prospecting pits, and 2 mine shafts. The vehicle routes through the area are the most noticeable impact on naturalness. The route along the Arroyo de la Presilla, which trends north-south into the center of the WSA, is evident from several vantage points. The routes are most noticeable where they cross hillsides and the larger arroyos. The cumulative impact of the vehicle routes, prospect pits, and mine shafts reduces the overall quality of naturalness in the WSA. Because

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	8,680
Split-Estate (BLM Surface Only)	0
Inholdings	0
Total	8,680
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	0
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings	0
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	8,680
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	8,680
Inholdings	0

of the locations of these impacts, a boundary adjustment to eliminate these impacts, while retaining a large enough area which possesses wilderness values, is impossible.

Although outstanding opportunities exist for primitive and unconfined recreation, the area does not possess outstanding opportunities for solitude. In addition, there are better recreation opportunities and outstanding opportunities for solitude available in another nearby area. Immediately east of the Presilla WSA lies the 12,798-acre Sierra de las Canas WSA. The Sierra de las Canas WSA has been recommended for wilderness designation and provides a more diverse array of primitive and unconfined recreation opportunities as well as outstanding opportunities for solitude. The outstanding opportunities available in the Sierra de las Canas WSA result from the area's high quality desert scenery, wildlife diversity, varied terrain, and vegetation.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The Presilla WSA marginally meets the naturalness criterion. This results from the cumulative impact of 5 miles of vehicle ways, 10 miles of barbed wire fence, 8 mineral prospect pits, and 2 mine shafts.

The vehicle routes through the area are the most significant impact on naturalness. The route along the Arroyo Tinajas and south into the center of the WSA is evident from several vantage points. The vehicle routes are most noticeable where they cross hillsides or the larger arroyos.

The mineral prospecting pits are all located in T. 2 S., R. 1 E., Sections 34 and 35. This concentration of prospect pits reduces the apparent naturalness in this portion of the WSA. The mine shafts are located near Arroyo Tinajas.

Human activities outside the WSA have a slight impact on the WSA's apparent naturalness. An old fluorspar mine and associated structures and dumps are located in T. 3 S., R. 1 E., Section 2 (State land). This section is almost surrounded by the WSA. The mine and associated development are visible from portions of the WSA. A large windmill and storage tank, located on a high ridge adjacent to the southern boundary of the WSA, are visible from most points in the central and southern portions of the WSA. The inactive mine and the windmill detract slightly from the apparent naturalness of portions of the area.

The eastern and western portions of the WSA generally appear natural. The impacted central and northern portions, while natural, cannot reasonably be separated from the WSA to improve the overall naturalness.

Solitude

During the wilderness inventory, solitude opportunities within the Presilla WSA were determined by BLM to be less than outstanding.

Primitive and Unconfined Recreation

The Presilla WSA contains a variety of landforms which provide visual interest. These include colorful arroyos with interesting erosional features such as narrow water-sculpted limestone and granite boxes, sand dunes, and steep ridges. The WSA also contains an interpretive site based on Indian pictographs.

The natural and cultural features of the WSA provide outstanding opportunities for day hiking, backpacking, camping, photography, various types of sightseeing, and nature studies.

Special Features

The Presilla WSA contains the Arroyo del Tajo Pictograph Site which consists of more than 75 figures representing Piro Pueblo religious figures and symbols. The pictograph site, representing a series of events, is unique in the Southwest.

The Arroyo del Tajo, Arroyo Tinajas, and Arroyo de Tio Bartolo also contain erosional features which are highly scenic. The value of these supplemental qualities is enhanced by their proximity to the City of Socorro and relative ease of access.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The Presilla WSA is in the Chihuahuan Desert Province with a potential natural vegetation (PNV) of grama/tobosa shrubsteppe. Wilderness designation of the area would not add any additional ecosystems that are not currently represented in New Mexico nor in the NWPS. The ecosystem information is summarized in Table 2.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of Albuquerque, Las Cruces, and Santa Fe, New Mexico and El Paso, Texas. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within a 5-hour drive of these population centers.

Balancing geographic distribution of wilderness areas

The Presilla WSA would not significantly contribute to balancing the geographic distribution of areas within the NWPS. In a clockwise direction, the Withington, Apache Kid, Manzano, and San Pasqual Wilderness Areas are all within a 50-mile radius of the Presilla WSA. These areas total approximately 130,000 acres.

Manageability

The WSA could be managed as wilderness. However, a significant issue concerning the manageability of the Presilla WSA as wilderness is

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas		Other BLM Studies	
	Areas	Acres	Areas	Acres
Province/Potential Natural Vegetation				
Nationwide				
Chihuahuan Desert Province				
Grama/Tobosa Shrubsteppe	2	39,907	16	180,296
New Mexico				
Chihuahuan Desert Province				
Grama/Tobosa Shrubsteppe	2	39,907	16	180,296

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,630	31	696,513
Las Cruces	14	1,192,386	35	773,954
Santa Fe	21	1,422,038	23	387,527
Texas				
El Paso	12	1,126,112	25	616,373

the area's existing quality of naturalness and the potential for rehabilitating the roads in the area. Rehabilitation would require hauling in soil to re-contour some of the road cuts across slopes, knocking down the road berms, and reseeding the disturbed area with native species. These measures could reduce the impact of the roads and with adequate rainfall and no vehicle use the scars would become less noticeable in the long-term. However, the potential success of these rehabilitation measures is poor due to the soil types and low precipitation in the area.

Positive factors influencing the manageability of the WSA include existing access and the visibility of boundaries. Visitors can enter the WSA from almost any point and disperse throughout the area. Visitors may enter and leave the WSA without leaving BLM-administered land. However, off-road vehicle (ORV) management would be a problem due to the abundance of routes, ease of access to and throughout the WSA, and historical use of the area for motorized access. Historic ORV use is especially a problem along the western boundary of the WSA.

On-the-ground management of the WSA would be enhanced by the visibility of its boundaries. Most of the boundaries are along maintained roads. The boundaries are easy to identify and would reduce conflicts from unauthorized uses or unintentional trespass.

Energy and Mineral Resource Values

The Presilla WSA is classified by BLM Geologists as having a moderate potential for geothermal (8,680 acres), uranium (5,500 acres), barite, fluorspar, lead, zinc (4,300 acres), copper (700 acres), and sand and gravel (1,200 acres).

In the Socorro area, the presence of hot springs, high heat flow, steep geothermal gradients, and geophysical evidence of shallow magma chambers indicates that a heat source underlies the area which may extend eastward under the WSA. The potential for the occurrence of a low temperature geothermal heat source which could provide heat for direct-use applications is moderate.

Uranium mineralization occurs in veins and fractures in granite outcrops in the eastern portion of the WSA. Higher than normal radioactivity and anomalous geochemical values also occur in the granite. Geochemical uranium values are 5 to 200

times the value for normal granite, while radioactivity is 3 to 24 times normal background radiation. The potential for discovery of a uranium ore deposit is moderate.

There are two known fluorspar deposits in or near the WSA: the Gonzales prospect in T. 3 S., R. 1 E., Section 2; and the La Bonita prospect in T. 3 S., R. 1 E., Section 12. Fluorspar and barite with minor amounts of lead and zinc occur along faults and fractures in Precambrian granite and in the Madera limestone. These deposits are small and appear to have low to moderate potential for discovery of economic deposits.

Copper mineralization occurs about 1 1/2 miles north of the WSA in T. 2 S., R. 1 E., Section 26 at Minas del Chupadero. The mineralization occurs as irregular stratabound deposits in sandstones in the Pennsylvanian Moya formation. The potential appears to be moderate because deposits of this type could extend into the extreme portion of the WSA.

Sand and gravel occur in the Santa Fe formation and in Quaternary alluvium within the western portion of the WSA. The WSA has moderate potential for the development of these resources.

Impacts on Resources

A comparative summary of impacts by alternative for the Presilla WSA is shown on Table 4. This information is taken from the Final EIS.

Local Social and Economic Considerations

No local social or economic considerations were identified in the New Mexico Statewide Wilderness Study; therefore, no further discussion of this topic will occur in this document.

Summary of WSA-Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Presilla area during the public review period on the *New Mexico Wilderness Study Area Proposals* (March 1980). The WSA proposals deferred a decision on the Presilla unit's suitability as a WSA to allow the BLM time to evaluate the rehabilitation potential of the area's post-FLPMA mining developments. During public review of the proposal to defer the decision, public comments were received in the form of personal letters, form letters, and petitions.

Eleven personal letters favored wilderness review of the Presilla unit. Supporting reasons included size, naturalness, opportunities for solitude and recreation, and supplemental values. Form letters and petitions received during the comment period listed the Presilla unit as one of the areas supported for further wilderness review.

Four personal letters opposed further wilderness review of the Presilla unit. Supporting reasons included mining and range impacts, the lack of opportunities for solitude, and potential resource conflicts.

After a reevaluation of the Presilla unit's wilderness characteristics based on these public comments, impacts to the area's naturalness, and the potential for rehabilitation of the post-FLPMA developments, the BLM released the entire Presilla area from further wilderness review in the *New Mexico Wilderness Study Area Decisions* (November 1980).

The BLM decision to release the entire Presilla area from further wilderness review was protested to the BLM New Mexico State Director. The State Director denied the protest and his decision was appealed to the Interior Board of Land Appeals (IBLA).

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (8,680 Acres Suitable)	No Wilderness (Proposed Action; 0 Acres Suitable)
Impacts on Wilderness Values	The natural character of the mesa benchlands and limestone hills as well as the opportunities for solitude, day hiking, photography, and viewing pictographs would be maintained.	In the long-term, naturalness, opportunities for day hiking, photography, and viewing pictographs would be maintained on the 1,280-acre ACEC. Naturalness in the remainder of the Presilla WSA (86 percent) would be lost by mineral exploration. Up to 10 miles of new roads would be constructed. Up to 75 drill holes throughout the WSA would result in approximately 85 acres of surface disturbance. The additional surface disturbance and increased road network would further degrade the area's existing naturalness. Increased vehicle use on new roads and trails would degrade the area's outstanding opportunities for solitude. Approximately 90 percent of the area's naturalness would be degraded over the long-term due to the above surface disturbing activities.
Impacts on Exploration and Development of Uranium, Barite, Fluorspar, Lead, Zinc, Sand and Gravel	The opportunity to fully explore and develop the following areas would be foregone. These include 5,500 acres for uranium; 4,300 acres for barite, fluorspar, lead, and zinc; 700 acres for copper; and 1,200 acres of sand and gravel.	No significant impact.

After reviewing the case, the IBLA quoted the *Interim Management Policy and Guidelines for Lands Under Wilderness Review* (1979) which states, ". . . impacts resulting from unauthorized activities will not disqualify an area from WSA status." IBLA then reversed the BLM decision denying the protest and remanded the Presilla unit to the BLM as a WSA. As a result of this ruling, Presilla is a WSA and its suitability for wilderness designation was evaluated in the *Las Cruces District Wilderness Supplemental Draft Environmental Assessment* (1983).

Wilderness Study Comments

During the public comment period on the *Las Cruces District Wilderness Supplemental Draft Environmental Assessment* (1983), a total of 44 personal inputs were received on the Presilla WSA. Thirty inputs were in favor and fourteen were opposed to wilderness designation.

Support for wilderness designation of the Presilla WSA centered around its proximity to the community of Socorro, which was felt to enhance its recreational and solitude values as well as supplemental values represented by the Arroyo del Tajo Pictograph Site and the area's visual resources. Several commenters felt that the BLM had improperly considered post-FLPMA impacts in assessing the naturalness of the WSA. It was also noted that the BLM failed to reclaim the post-FLPMA mining roads.

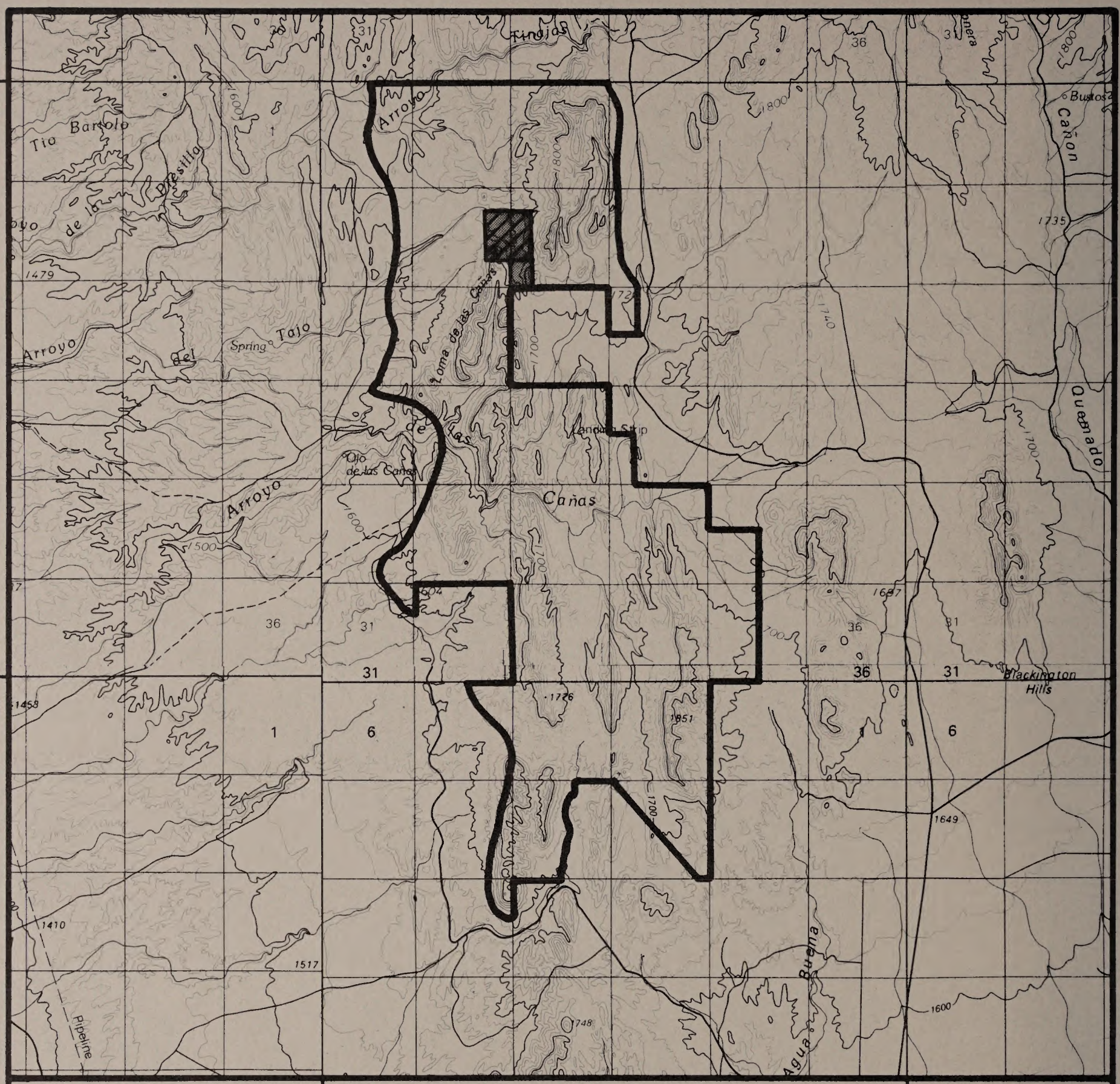
Fourteen personal inputs agreed with the recommended action for the Presilla WSA, but provided no new information. White Sands Missile Range (WSMR) noted that approximately 760 acres in the eastern most portion of the WSA is in the Safety Extension Area and that WSMR would be opposed to wilderness designation of this portion of the WSA.

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commenters supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition. Alternative W included the Presilla WSA and recommended wilderness designation for the entire WSA. Specific comments were directed to the Presilla WSA by 18 commenters, 16 of which supported wilderness designation.

During the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), specific comments were directed to the Presilla WSA by 23 commenters.

SIERRA DE LAS CANAS WILDERNESS STUDY AREA

MAP I



RECOMMENDED FOR WILDERNESS

RECOMMENDED FOR NONWILDERNESS

LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS (None)

SPLIT ESTATE (None)

STATE (None)

PRIVATE

N

0 1 2

MILES

Sierra De Las Cañas Proposal

NM-020-035

April 1990

SIERRA DE LAS CAÑAS WILDERNESS STUDY AREA

THE STUDY AREA – 12,838 Acres

The Sierra de las Cañas Wilderness Study Area (WSA), NM-020-038, is located in Socorro County in central New Mexico, approximately 7 air miles east of Socorro, New Mexico. The WSA includes 12,838 acres of Bureau of Land Management (BLM) land. (See Table 1 for land status and acreage summary of the study area). The northern boundary of the WSA is bounded by private and State lands. The east and west boundaries are bordered by county roads. The southern boundary is bounded by State land and a county road.

The WSA is characterized as a rugged desert mountain range with sheer rock escarpments, deep narrow canyons, mountain ridges, mesa tops, broken badlands, and isolated desert valleys. Elevations range from 5,100 to 6,200 feet. Several large drainages present within the WSA trend northeast to southwest, affording scenic views of the Rio Grande Valley.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. There were three alternatives analyzed in the EIS: an all wilderness alternative, an amended boundary alternative, and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

12,798	Acres recommended wilderness
40	Acres recommended nonwilderness

The recommendation for this WSA is to designate 12,798 acres as wilderness and release the remaining 40 acres for uses other than wilderness (see Map 1). This recommendation is based on the area's high quality wilderness values, its easy accessibility for primitive and unconfined recreational uses, the lack of conflicts with other actual or potential uses of the area, and well defined boundaries which will aide in wilderness management. The area not designated wilderness would allow access to a private inholding.

The All Wilderness Alternative is the environmentally preferable alternative as its implementation would result in the least change from the natural environment over the long-term. The recommendation, while not the environmentally preferred, will be implemented in a manner which would utilize all practical means to avoid or minimize environmental impacts. The majority of this WSA is recommended as wilderness. Surface disturbing activities projected for the 40 acres not recommended for wilderness include an anticipated access route to a 160-acre private inholding within the WSA. While reasonable access must be provided to the private

inholding, road design considerations, intended to minimize visual impacts, would be incorporated prior to development.

The recommendation will add an area with extremely high natural values. Even though the WSA is only 10 miles from Interstate 25 and the town of Socorro, there are few signs of man in the area. While most of the country nearby is covered with roads and vehicle routes, this WSA has very few. The rugged character and lack of water have caused only light grazing and few grazing developments.

The WSA is a topographically serrated desert mountain range characterized by near vertical escarpments, steep slopes, and rugged canyons. The flanks of the mountains include broken badlands, arroyos, and desert. The topographic diversity coupled with the severity of much of the WSA's landforms ensure outstanding solitude opportunities of the highest quality.

Wilderness designation will preserve an undisturbed area of ecological interest. The WSA occurs in an area where the Upper Chihuahuan Desert Province merges with the Colorado Plateau Province creating an area with diverse vegetation consisting of desert shrub, creosote bush, and pinyon-juniper. This merging of two ecosystems could provide an educational opportunity.

The area recommended for wilderness would expand the spectrum of primitive recreational opportunities for residents of the region and permanently

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	12,838
Split-Estate (BLM Surface Only)	0
Inholdings	160
Total	12,998
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	12,798
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	12,798
Inholdings	0
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	40
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	40
Inholdings	160

preserve the scenic values of a desert mountain range visible from much of the Middle Rio Grande Valley and Socorro. Wilderness designation will provide primitive recreation opportunities in an area both visible and accessible from Interstate 25. The WSA rises above the Rio Grande Valley, and the WSA's broken and convoluted western escarpment often provides a display of variegated, banded colors during the late daylight hours. Popular recreation activities include sightseeing, photography, deer hunting, horseback riding, and hiking.

Within the recommended area, the rugged Loma de las Cañas ridgeline and adjoining side canyons include rough terrain which has acted as a natural barrier, precluding access except in open washes. Rugged terrain and recognizable boundaries would enhance manageability of the area as wilderness.

The conflicts with other resource uses of lands recommended for designation are limited. Grazing use will be allowed to continue, but maintenance requirements are few and no new projects would be foregone. The area has been rated as having low resource potential for undiscovered uranium and other metals, oil and gas, coal and geothermal energy. The U.S. Geological Survey (USGS) and Bureau of Mines rated the WSA as having a high potential for the occurrence of gypsum, but stated the economic value of the deposit was insignificant in light of other gypsum deposits in New Mexico. No development of these resources are projected in the foreseeable future.

The 40 acres of BLM land recommended as nonwilderness is located on the northeastern edge of the WSA immediately adjacent to a 160-acre private inholding. The private landowner has indicated a need to develop an access road to his private land. The most reasonable location to construct this road is through this 40-acre parcel of BLM land. Excluding the 40-acre BLM parcel will create new wilderness boundaries that also exclude the 160-acre private inholding. This action would enhance management of the area by eliminating the conflict with developing access to the private land.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The WSA is not only virtually free of obvious human impacts, it also represents one of New Mexico's least disturbed upper Chihuahuan Desert ecosystems. Although grazing use within the area has occurred over the past century, the absence of water combined with rugged topography has resulted in the WSA being subjected to only light grazing pressure by livestock.

Solitude

The WSA is a topographically serrated desert mountain range characterized by near vertical escarpments, steep slopes, and rugged canyons. The flanks of the mountains include broken badlands, arroyos, and rolling desert. The topographic diversity, coupled with the severity of much of the WSA's landforms, ensures outstanding solitude opportunities of the highest quality.

Primitive and Unconfined Recreation

This rugged desert mountain environment, with its colorful escarpments, canyons, and vistas, provides an outstanding setting for day hiking, backpacking, photography, deer hunting, and various types of sightseeing. The area is most attractive for these recreational uses during the colder months.

The area's outstanding recreational opportunities are further enhanced by the area's proximity to Socorro and Interstate 25 and the well maintained roads which provide access to the western, southern, and eastern edges of the WSA.

Special Features

The WSA represents a fine example of the scenic value of a low elevation desert mountain range.

The value of the area's scenic qualities is enhanced by its location. Rising above the eastern breaks of the Rio Grande Valley, the WSA is an important part of the visual landscape of the community of Socorro and for travelers along Interstate 25 and U.S. Highway 60. Especially appealing is the scenic quality of the WSA's broken and convoluted western escarpment, which during the late daylight hours, reflects variegated banded colors tinged with red.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The Sierra de las Cañas WSA lies near the northern extreme of the Chihuahuan Desert Province and close to the southern edge of the Colorado Plateau Province. Potential natural vegetation (PNV) consists of 4,488 acres of juniper/pinyon woodland in the Colorado Plateau Province and 8,350 acres of grama/tobosa shrubsteppe in the Chihuahuan Desert Province. However, because of the WSA's geographic position between the Chihuahuan Desert and the Colorado Plateau Provinces, these area are not clearly distinctive. Instead, they tend to intergrade into one another to varying degrees. The ecosystem information is summarized in Table 2.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of Albuquerque and Las Cruces, New Mexico, and El Paso, Texas. Table 3 summarizes the number and acreage of designated areas and other BLM study areas within a 5-hour drive of these population centers.

Balancing the geographic distribution of wilderness areas

The closest designated wilderness area to the Sierra de Las Cañas WSA is the San Pascual Wilderness Area, located 10 miles south in the Bosque Del Apache National Wildlife Refuge. Also within a 50-mile radius of the WSA are the following designated wilderness areas administered by the Cibola National Forest: Manzano, Withington, and the Apache Kid. These areas total approximately 130,000 acres.

Manageability

The Sierra de las Cañas WSA could be managed to preserve the wilderness values which presently exist. The WSA could be managed with the private inholding, but exclusion from the recommended wilderness would reduce manageability problems related to private land access. The recommended wilderness boundaries are in most cases easily recognizable, delineated by either roads or distinct topographic features. Only limited signing will be required to identify the wilderness boundary where physical delineation is inadequate.

The Sierra de las Cañas WSA lies within a Safety Extension Area used primarily as a safety impact zone in support of several missile test programs conducted at White Sands Missile Range (WSMR). The Extension Area must be evacuated of all human inhabitants during missile firings. The Extension Area is necessary for an indefinite period of time to support future military programs requiring a test range in excess of that provided by the main WSMR. WSMR requires reasonable access to the Extension Area to recover missile debris. However, no known impacts of this nature have occurred within the WSA to date. A designated wilderness within the WSMR Safety Extension Area would require special management consideration to meet the military's needs while preserving wilderness values and ensuring human safety. Access to recover missile debris could be granted after determining the method which would least impact wilderness values. However, this is not expected to produce significant problems because of the low probability of a missile impacting in the area.

A single 160-acre private inholding is located in the WSA. Since the present landowner desires to con-

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Colorado Plateau Province				
Juniper/Pinyon Woodland	10	139,367	87	2,091,354
Chihuahuan Desert Province				
Grama/Tobosa Shrubsteppe	2	39,907	16	180,626
New Mexico				
Colorado Plateau Province				
Juniper/Pinyon Woodland	4	33,084	13	138,079
Chihuahuan Desert Province				
Grama/Tobosa Shrubsteppe	2	39,907	16	180,626

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	692,355
Las Cruces	14	1,192,386	35	769,796
Santa Fe	21	1,422,038	23	383,369
Texas				
El Paso	12	1,126,112	25	612,215

struct a vehicle access route into his property and develop his land, the presence of this inholding within the designated wilderness would pose significant manageability problems. The acquisition by the BLM of the 160-acre private inholding through voluntary exchange or purchase would enhance the manageability of the WSA and also assist in maintaining the area's micro-ecosystem and wildlife values. Currently, the acquisition of this inholding is unlikely because of the owner's opposition.

Energy and Mineral Resource Values

In 1986, the USGS and the U.S. Bureau of Mines conducted a mineral resource appraisal of the Sierra de las Cañas WSA. This wide-ranging study included an examination of geologic, geochemical, and geophysical data, as well as a review and assessment of local mining activity. The following is a summary of their findings.

The entire study area was found to have a high mineral resource potential for gypsum. Their investigations showed that the WSA contains 50,200 short tons of gypsum in the Yeso Formation. However, vast amounts of developable gypsum are available outside the WSA. The average gypsum mine in New Mexico produces 100,000 short tons per year, which makes the 50,200 short tons in the WSA insignificant.

A small area in the southeast part of the WSA has moderate resource potential for undiscovered bismuth, tungsten, lead, and zinc. The WSA has low resource potential for undiscovered uranium and other metals, oil and gas, coal, and geothermal energy.

As of April 15, 1986, there were seven post-FLPMA claims recorded with BLM in the WSA. There is, however, no ongoing mining activity.

Impacts on Resources

A comparative summary of impacts by alternative for the Sierra de las Cañas WSA is shown on Table 4. This information was taken from the Final EIS.

Local Social and Economic Considerations

No local social or economic considerations were identified in the New Mexico Statewide Wilderness Study; therefore, these issues are not discussed in this document.

Summary of WSA-Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Sierra de las Cañas area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). During the inventory phase, public involvement has, with few exceptions, indicated support for designation of the Sierra de las Cañas area as a wilderness area. Reasons cited have included the area's high naturalness values, outstanding solitude and recreation values, its proximity to Socorro and the Rio Grande Valley, and high scenic, wildlife, and ecological values. The lack of resource conflicts, coupled with the area's manageability as wilderness, were also mentioned as reasons for designating the area. A number of public comments urged the BLM to acquire the 160-acre private inholding within the WSA due to its important ecological and wildlife values. One petition and 2,524 endorsements of the conservationist proposal were received.

Opposition to wilderness designation came from area permittees. Following adjustments to the WSA boundary, all but one permittee appeared satisfied that designation of the involved land would not significantly hamper or interfere with their respective ranch operations. One petition was received.

White Sands Missile Range (WSMR) personnel expressed concern that designation of the Sierra de las Cañas WSA as wilderness could potentially conflict with military operations within the WSMR Safety Extension Area.

Wilderness Study Comments

During the public comment period on the *Draft Environmental Assessment Socorro District Wilderness* (1983), 26 letters were received. Four respon-

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (12,838 Acres Suitable)	No Wilderness (0 Acres Suitable)	Amended Boundary (Proposed Action; 12,798 Acres Suitable)
Impacts on Wilderness Values	The natural character of this rugged desert mountain and broken badlands landscape would be maintained. Outstanding opportunities for solitude, and outstanding opportunities for hiking, and backpacking, photography, deer hunting, and sightseeing. The area's special features created by the colorful rock banding would also be maintained.	Wilderness values would not receive long-term Congressional protection. The area would probably retain its naturalness, outstanding opportunities for solitude and primitive recreation in the short-term. Mineral exploration activities, mining claim assessment work, and off-road vehicle use would degrade naturalness in 25 percent of the area over the long-term. Anticipated mineral exploration and development of up to 70 drill holes and 2 geothermal wells would result in 50 acres of surface disturbance. Up to 10 miles of new road would be constructed with mineral exploration and development.	Wilderness designation would protect 99 percent of the area's high quality wilderness values. Motorized access to the private inholding would be allowed.

dents were opposed to wilderness designation because: the WSA has a moderate favorability for geothermal resources, copper, barite, fluorite, lead, and zinc, and untested oil and gas potential; designation will simply attract increased public pressure on the area without compensating benefits; the area is unmanageable and of little value as wilderness; designation would impose hardship and cause difficulty in ranch operations; and WSMR will be restricted in its access and support needs. Twenty-two respondents supported wilderness designation for the Sierra de las Cañas WSA. Reasons for this support centered around the area's wilderness values and minimal resource conflicts. It was also stated that the area's value as wilderness is enhanced by its scenic values, cultural sites, proximity to Socorro, and that it is an excellent example of an upper Chihuahuan Desert ecosystem.

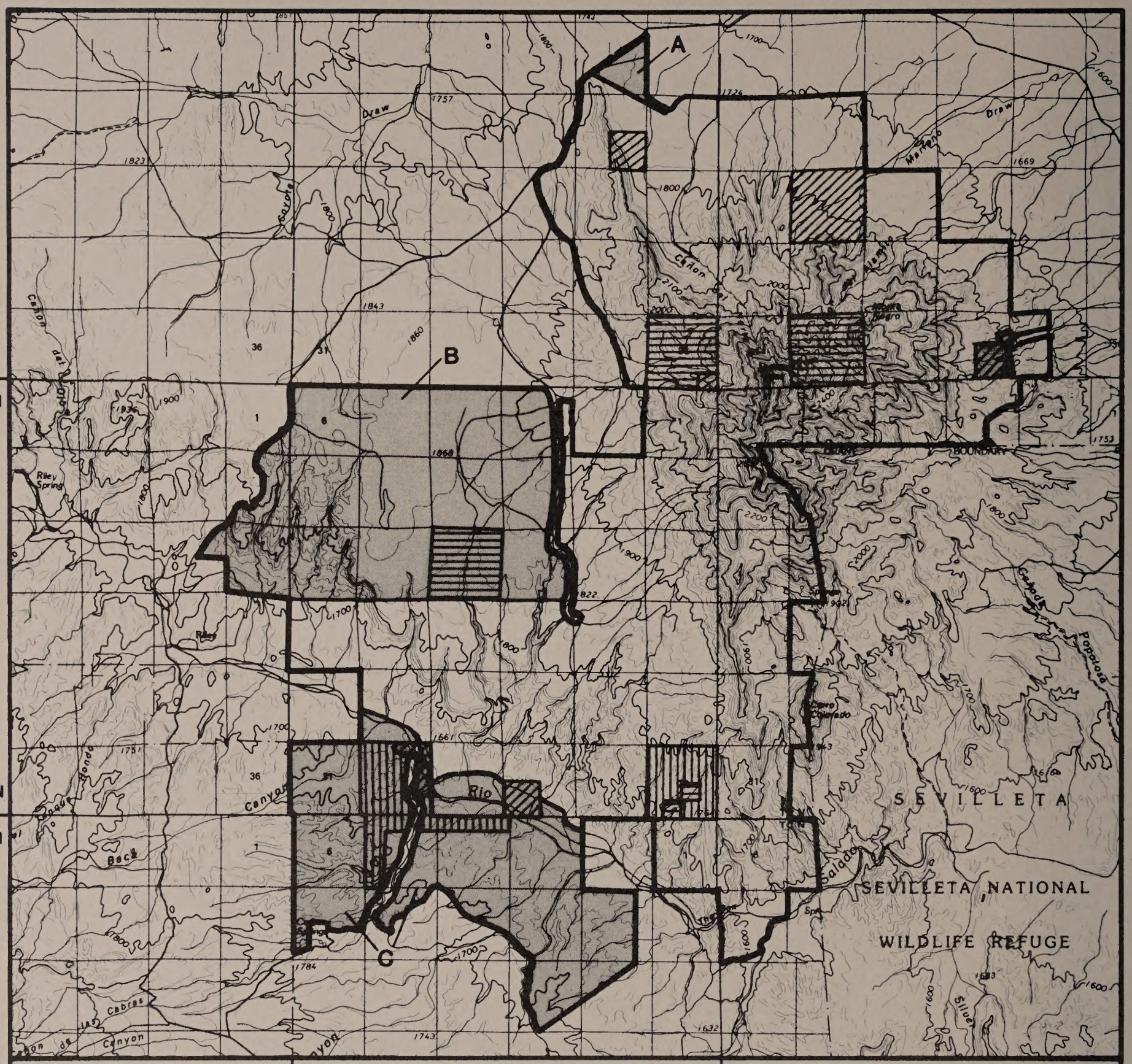
During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985), BLM received

465 comments in the form of letters and testimony at public hearings. A total of 340 commenters supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition. Alternative W included the Sierra de las Cañas and recommended wilderness designation for the entire WSA as well as an expanded boundary. Specific comments were directed to the Sierra de las Cañas WSA by 13 commenters; 12 of which supported and 1 opposed wilderness designation.

During the public comment period on the *New Mexico Statewide Wilderness Study: Revised Draft Environmental Impact Statement* (1986), specific comments were directed to the Sierra de las Cañas WSA by 20 commenters, all of which supported wilderness designation.

SIERRA LADRONES
WILDERNESS STUDY AREA

MAP 1



RECOMMDENDED FOR WILDERNESS

RECOMMENDED FOR NONWILDERNESS

LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS (None)

SPLIT ESTATE

STATE

PRIVATE

N

0 1 2

MILES

Sierra Ladrones Proposal

NM-020-016

April 1990

SIERRA LADRONES
WILDERNESS STUDY AREA

THE STUDY AREA — 45,308 Acres

The Sierra Ladrones Wilderness Study Area (WSA), NM-020-016, is located in northern Socorro County, approximately 15 air miles northwest of Socorro, New Mexico. The WSA includes 43,770 acres of Bureau of Land Management (BLM) land, 1,538 acres of split-estate (Federal surface, non-Federal subsurface), 2,485 acres of State land, and 645 acres of private inholdings. (See Table 1 for land status and acreage summary of the study area.) The WSA is bounded on the north by private and BLM lands and on the west and south by roads. The eastern border of the WSA is formed by the adjacent Sevilleta National Wildlife Refuge.

The Sierra Ladrones rise precipitously out of the Rio Grande Valley on the east and from mesa grassland and pinyon-juniper woodland on the north, west, and south. Elevations range from 5,200 to 9,176 feet, with a maximum relief of almost 4,000 feet.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. Three alternatives for the Sierra Ladrones WSA were analyzed in the EIS: an all wilderness alternative, an amended boundary alternative, and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

31,804	Acres recommended wilderness
13,504	Acres recommended nonwilderness

The recommendation for this WSA is to designate 31,804 acres as wilderness and release the remaining 13,504 acres for nonwilderness uses (see Map 1). This recommendation is based on the fact that the land in the northern and eastern portions of the WSA contain high quality wilderness values. The area not recommended for wilderness contains unrecognizable boundaries; manageability problems due to private and State inholdings and split-estate land; rangeland improvements requiring maintenance; low quality wilderness values, especially naturalness; and lack of diversity in terrain and vegetation. This recommendation for wilderness will further apply to any additional inholding or split-estate acreage acquired through purchase or exchange with willing owners. Appendix 1 lists all inholdings and split-estate tracts and provides additional information on acquisition of inholdings and split-estate minerals.

The All Wilderness Alternative is the environmentally preferable alternative, as its implementation would result in the least change to the natural environment over the long-term. The recommendation, while not

the environmentally preferred, will be implemented in a manner which would utilize all practical means to avoid or minimize environmental impacts. The majority of this WSA is recommended as wilderness. In the 13,504 acres not recommended for wilderness, there are no surface-disturbing activities presently proposed. There is a possibility of mineral exploration which could change the natural environment of the area, depending on the level of exploration which takes place. Any mineral exploration, however, would be regulated to prevent unnecessary and undue degradation of the environment.

In the 1989 Socorro Resource Management Plan, BLM designated 62,460 acres in the Sierra Ladrones as the Ladron Mountain Special Management Area (SMA). This SMA includes 8,300 acres of that portion of the WSA not recommended for wilderness designation. The SMA will be managed to protect wildlife habitat, habitat for rare and endemic plants, as well as geologic, scenic, recreational, and paleontological values. Planned actions to protect these resources include: closing to domestic sheep and goats; limiting and closing existing roads; restricting authorizations for rights-of-way; closing the area to wood cutting; restricting mineral material disposals; acquiring non-Federal lands; restricting geophysical operations; and reintroducing desert bighorn sheep.

The recommended area has high wilderness values. The rugged topography is essentially natural; intrusions in canyons, such as access routes, are generally well-screened. Its high mountain peaks,

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	43,770
Split-Estate (BLM Surface Only)	1,538
Inholdings	3,130
Total	48,438
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	31,244
BLM (Outside WSA)	0
Split-Estate (Within WSA)	560
Total BLM Land Recommended for Wilderness	31,804
Inholdings	1,520
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	12,526
Split-estate (BLM Surface Only)	78
Total BLM Land Not Recommended for Wilderness	13,504
Inholdings	1,610

isolated canyons, and inaccessible badlands provide the visitor with outstanding solitude opportunities. The area's landscape diversity provides visitors with outstanding primitive recreational opportunities. The proximity and ease of access of the WSA to nearby population centers further enhance the value of these opportunities to the general public.

The WSA is dominated by the granitic core of the Sierra Ladrones. The dramatic uplift of the mountain range, especially when viewed from the north, is inherently scenic. The panoramic view from the top of Ladrone Mountain is spectacular. The WSA is visible from a distance of nearly 100 miles in some directions. The Sierra Ladrones stand as one of New Mexico's outstanding visual landmarks.

The recommended area contains significant geologic features including fossils which are not found elsewhere in New Mexico.

The ecological values of the WSA are also high. The WSA lies near the junction of two major ecoregions and includes such a wide range of landform and life zone diversity that the ecological resources of the area can be considered scientifically valuable. The area also contains potential for occurrence of one Federally-listed and four State-listed species of endangered plants.

The massive rock escarpments, canyons, and outcrops are attractive to birds of prey. The area is potentially suitable for the reintroduction of desert bighorn sheep, a State-listed endangered species. The rocky slopes also provide significant habitat for mule deer, cougar, bobcat, and gray fox.

The area recommended for wilderness can be managed to preserve the quality of the wilderness characteristics. The boundaries are readily identifiable because of the natural change in terrain. The topography and absence of conflicting land uses or private rights within the recommended area would allow the BLM to manage the area to ensure its preservation and use as wilderness in an unimpaired condition.

The conflicts with other resource uses of lands recommended for wilderness designation are primarily with minerals. Although the Sierra Ladrones WSA possesses moderate to high mineral resource potential, little exploration or development has taken place in or near the area recently. The high quality wilderness values in the recommended area outweigh the potential mineral values previously described.

The 13,504 acres not recommended for wilderness designation are of different physical character and have less wilderness quality than the area recommended for wilderness designation. Although they can be managed as wilderness, other factors exist which support a nonwilderness designation. These 13,504 acres comprise three separate parcels identified as A, B, and C. All these areas are open mesa grasslands and foothills, while the majority of the area recommended for wilderness is mountainous terrain. These open areas do not provide the same degree of wilderness values offered by the more diverse landform of the area recommended for wilderness.

Parcel A (150 acres), in the northern portion of the WSA, is not recommended for wilderness designation in order to enhance manageability by establishing a more identifiable wilderness boundary utilizing a natural change in terrain.

Parcel B (8,300 acres), in the western portion of the WSA, is not recommended for wilderness because it has been heavily impacted by rangeland developments and access routes. It contains a 640-acre inholding of State land. This parcel also lacks diversity in terrain and vegetation, and does not offer outstanding opportunities for solitude or primitive recreation.

Parcel C (5,054 acres), in the southern portion of the WSA, is not recommended for wilderness because

it possesses low quality naturalness due to rangeland developments associated primarily with a Savory Grazing System. This parcel also contains two private inholdings totaling 325 acres and split-estate land which intensify manageability problems.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The Sierra Ladrones WSA generally appears natural. The eastern mountain core and northwestern corner of the WSA are highly natural in appearance and affected primarily by the forces of nature. The naturalness of the WSA is further enhanced by its dramatic topographic relief, diversity of landforms, and relatively large size.

The WSA is impacted by vehicle ways which vary from jeep trails to two-track ranch access routes. Approximately 2 1/2 miles of a bladed road which provides access to a windmill and large water storage tank has been cherry-stemmed out of the WSA. Rangeland developments are concentrated on the western and southern portions of the WSA. These developments include fences, dirt tanks, developed springs, pipelines, drinking troughs, and access routes. The generally high quality of naturalness in the WSA is reduced in these areas of more intensive grazing management and are not recommended for wilderness.

Although occasional human intrusions are present in the mountainous core and in the southern corner of the WSA (north of the Rio Salado), the rugged topography moderates the significance of these intrusions to a considerable degree.

Solitude

The Sierra Ladrones WSA is a rugged range of unusual topographic diversity. Its high mountain peaks, isolated canyons, and inaccessible badlands provide the visitor with outstanding solitude opportunities.

The Sierra Ladrones are topographically diverse; elevations vary from 5,200 feet to 9,176 feet on Ladrone Peak. Numerous canyons provide excellent solitude opportunities. Additionally, badlands and dissected mesas in the southwestern and south-central portions of the WSA provide contrasting landforms with outstanding solitude.

Primitive and Unconfined Recreation

The WSA provides visitors with outstanding primitive recreational opportunities for day hiking, backpacking, mountain climbing, technical rock climbing, horseback riding, photography, nature study, and environmental exploration. The proximity and ease of access of the WSA to Albuquerque, Belen, and Socorro, New Mexico further enhance the value of these opportunities to the general public. The WSA is also recreationally important because it is well suited to fall, winter, and spring use. It is during these seasons that the WSA is most attractive for recreational pursuits. Generally, recreation opportunities are of a higher quality in the area recommended as wilderness than nonwilderness due to the difference in terrain, naturalness, solitude, and primitive recreation opportunities between the two areas.

Special Features

The Sierra Ladrones WSA contains the northernmost known exposures of lower Mississippian rocks in New Mexico. Exposures of these rocks in west-central New Mexico are limited largely to the Magdalena, Lemitar, and Ladrone Mountains. The exposures are of special interest to those wanting to become familiar with the lithology and paleontology of the Mississippian. In the Sierra Ladrones, these rocks are well exposed and abundant in fossils and make the area valuable for educational purposes. The Caluso member of the Kelly limestone on the

western side of the WSA contain fossils of the Kinderhook fauna, two brachiopods, which are not found elsewhere in New Mexico.

The scenic values of the Sierra Ladrones WSA are significant both when viewed from a distance (e.g., Interstate 25) and from within the WSA proper. The range of topographic relief and the landform diversity within the WSA create a southwestern scenic landmark of considerable importance.

The ecological values of the WSA are also high. The WSA lies near the junction of two major ecoregions and includes such a wide range of landform and life zone diversity that the ecological resources of the area can be considered scientifically valuable.

The WSA also provides significant historic habitat for desert bighorn sheep, a State-listed endangered species. These sheep are scheduled for reintroduction into the WSA in the near future.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The Sierra Ladrones WSA is within the Colorado Plateau and the Upper Gila Mountains Forest Province. The potential natural vegetation (PNV) consists of 38,920 acres of pinyon/juniper woodland within the Upper Gila Mountains Forest Province, 2,000 acres of pine/Douglas fir forest, and 4,388 acres of grama/galleta steppe in the Colorado Plateau Province. Wilderness designation of this WSA would add examples of these three ecosystems to the National Wilderness Preservation System (NWPS). This information is summarized in Table 2.

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Upper Gila Mountains Forest Province				
Pinyon/Juniper Woodland	12	447,438	6	62,443
Colorado Plateau Province				
Pine/Douglas Fir Forest	6	125,545	7	16,932
Grama/Galleta Steppe	8	164,365	12	86,702
New Mexico				
Upper Gila Mountains Forest Province				
Pinyon/Juniper Woodland	2	220,865	3	14,082
Colorado Plateau Province				
Pine/Douglas Fir Forest	5	80,523	2	10,835
Grama/Galleta Steppe	6	105,255	12	86,702

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time from Albuquerque, Las Cruces, and Santa Fe, New Mexico; and El Paso, Texas. Table 3 summarizes the number and acreages of designated areas and other BLM study areas within a 5-hour drive of the population centers.

Balancing the geographic distribution of wilderness areas

The Sierra Ladrones WSA would slightly contribute to balancing the geographic distribution of areas within the National Wilderness Preservation System. The Manzano (northeast), San Pasqual (south), Apache Kid (southwest), and Withington (southwest) wilderness areas are all within a 50-mile radius of the Sierra Ladrones WSA. These four areas total 130,722 acres.

Manageability

The majority of the Sierra Ladrones WSA could be managed to preserve the wilderness values which presently exist. Manageability is a judgment made by the BLM after considering such factors as: private and State inholdings, valid existing rights, topography, and the overall land ownership pattern.

Acquisition of private and State inholdings, through voluntary exchange, would enhance manageability. Access to the 165-acre private inholdings in the northwestern portion of the WSA has recently been requested. Access to private inholdings in the southern portion of the WSA is also a manageability concern. The recommended wilderness area boundary eliminates anticipated conflicts with these private inholdings, thereby enhancing manageability. However, approximately 1,520 acres of State and private lands remain a manageability concern in the area recommended for wilderness designation.

Energy and Mineral Resource Values

In 1986, the U.S. Geological Survey and U.S. Bureau of Mines surveyed the Sierra Ladrones WSA to determine the identified (known) resources and to assess the mineral resource potential (undiscovered) of the WSA. This survey covered that portion of the WSA recommended as suitable for wilderness designation. The survey included investigations of geologic, geophysical, and geochemical data as well as an extensive literature review. Following is a summary of the findings of the survey.

Table 3: Wilderness Opportunities for Residents of Major Population Centers

	NWPS Areas		Other BLM Studies	
Population Centers	Areas	Acres	Areas	Acres
New Mexico				
Albuquerque	26	1,762,638	31	659,885
Las Cruces	14	1,192,386	35	737,326
Santa Fe	21	1,422,038	23	350,899
Texas				
El Paso	12	1,126,112	25	579,745

Mining activity has occurred in the Sierra Ladrones since the latter half of the 19th century. In the 1920's fluorspar was produced from the Juan Torres fluorite prospect in the south-central part of the WSA. Some 610 tons of manganese was produced from the Black Mask mine and the Rio Salado mine in the southern parts of the WSA in the early 1950's. From 1954 to 1958, the Jeter mine located just outside the northeast boundary of the WSA produced approximately 58,000 pounds of uranium oxide. In spite of this mining history, no known metallic mineral resources were identified in the WSA. Sub-economic resources of limestone, travertine, and sand and gravel are present. Abundant supplies of similar materials are available much closer to population centers, and the distance to market makes development of these commodities in the WSA unlikely.

However, as of March 1, 1990, a mining company was doing exploratory drilling along the southern boundary of the WSA to possibly develop travertine deposits in this location.

Based on analysis of geologic and geochemical data, it was determined that five areas within the WSA have moderate potential for undiscovered resources of various commodities: (1) tungsten, bismuth, molybdenum, and lead in approximately 4,200 acres in the northern and east-central parts; (2) silver and gold in approximately 1,300 acres in the northeastern part; (3) fluorite and tungsten in about 300 acres around the Juan Torres prospect in the east-central portion; (4) manganese, cobalt, nickel, tungsten, and molybdenum in approximately 500 acres around the Black Mask mine in the southwestern part; and (5) manganese, cobalt, nickel, and molybdenum in 600 acres near the Rio Salado Mine in the south end of the WSA. The mineral resource potential for coal, uranium, oil and gas, and geothermal energy in the WSA is low.

The areas of mineral resource potential are less extensive and more isolated than was originally determined by BLM geologists.

Impacts on Resources

A comparative summary of impacts by alternative for the Sierra Ladrones WSA is shown on Table 4. This information is taken from the Final EIS. However, since the Final EIS was released, new information concerning the mineral resource potential for the WSA was submitted to BLM by the USGS and Bureau of Mines. Because mineral potential was an issue in the Final EIS, and the new information changes the evaluation, this table has been revised to include the updated information.

Local Social and Economic Considerations

No local social or economic considerations were identified in the New Mexico Statewide Wilderness Study; therefore, this topic is not discussed in this document.

Summary of WSA-Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Sierra Ladrones area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). Public comment overwhelmingly supported this recommendation (33 individual comments) on the basis the area is over 5,000 acres in size, meets the naturalness criterion, offers outstanding opportunities for both solitude and primitive recreation, and possesses high supplemental values.

A number of comments (three) were received which opposed WSA status for any part of the Sierra Ladrones. The most consistent objection was the fact that the area is not "pristine" and is, in fact, peppered with "historical" mines.

Resource conflicts were also cited as a reason for not designating any portion of the Sierra Ladrones area a WSA.

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (43,770 Acres Suitable)	No Wilderness (0 Acres Suitable)	Amended Boundary (Proposed Action; 31,804 Acres Suitable)
Impacts on Wilderness Values	The natural character of this forested and rugged mountain would be maintained. The successful reintroduction of desert bighorn sheep would be dependent upon maintaining the natural character of this area. Opportunities for solitude, hiking, back-packing, hunting, technical rock climbing and photography would also be maintained.	Over the long-term, construction of 10 miles of new roads and upgrading of 10 miles of ways, drill pads, and surface disturbance associated with motorized recreation, livestock operations, communication facilities, and mineral exploration and low level of development would degrade naturalness and opportunities for solitude and primitive recreation throughout the WSA. Continued and increased vehicular access as a result of new roads would degrade naturalness and opportunities for solitude over 75 percent of the WSA.	Wilderness protection would maintain naturalness, solitude, and recreation opportunities in the area with the highest quality wilderness values. The primary bighorn sheep habitat would be within the wilderness boundary. The naturalness of the designated area would be enhanced by boundary adjustments to exclude rangeland developments and access routes. Degradation of wilderness values would occur in the area recommended nonsuitable due to resource use and development over the long-term. This development would degrade wilderness values on all of the area recommended nonsuitable.
Impacts on Exploration and Possible Development of Cobalt, Nickel, Silver, and Lead	The opportunity to fully explore and develop the following areas with mineral resource potential would be foregone: 5,100 acres with moderate potential for tungsten; 5,300 acres with moderate potential for molybdenum; 42,000 acres with moderate potential for lead and bismuth; 1,300 acres with moderate potential for silver and gold; 1,100 acres with moderate potential for manganese, cobalt, and nickel; and 300 acres with moderate potential for fluorite.	No significant impacts.	Impacts would be the same as those under the All Wilderness Alternative.

A number of individuals and an informal group requested that the 6,000 acres of the Sierra Ladrones area lying south of the Rio Salado not be deleted from the proposed WSA. It was maintained that the area in questions forms an integral part of the Sierra Ladrones area, contains a BLM spring and riparian habitat, and according to BLM inventory procedures, should be included in the Sierra Ladrones Unit.

Wilderness Study Comments

Public involvement in the wilderness inventory and study process has generally indicated strong support for designation of a Sierra Ladrones wilderness area or an alternative designation including primitive area status. This support has a history dating at least to the late 60's. Although the support tends to be centered in Albuquerque and Santa Fe, New Mexico, it is Statewide in scope.

There was also public support for a WSA larger than that which was selected by the BLM in the *New Mexico Wilderness Study Area Decisions*. This resulted in a successful appeal to the Interior Board of Land Appeals (IBLA). The IBLA decision added approximately 6,000 acres of land south of the Rio Salado to the Sierra Ladrones WSA.

The most commonly cited reasons in support of wilderness designation included the WSA's outstanding solitude and natural values, its recreation potential, and proximity to Albuquerque, Belen, and Socorro, New Mexico, combined with high scenic, wildlife, and ecological values.

Opposition to wilderness designation has been intense from local mining interests who feel designation would adversely impact mineral prospecting and development. Most area grazing permittees are also opposed to wilderness designation. They feel designation would adversely affect livestock operations on those portions of their respective allotments located within the WSA.

During the public comment period on the *Draft Environmental Assessment Socorro District Wilderness* (1983), 27 letters were received. Twenty-one respondents favored wilderness designation for Sierra Ladrones, four were opposed, and two provided information but neither favored or opposed designation. Supporters of wilderness designation cited the WSA's wilderness values, which are felt to be of such high quality that the area is one of the best BLM wilderness candidates in the State. These values are further enhanced by the WSA's location adjacent to the Sevilleta Land Grant, which is managed as a natural area and wildlife refuge. Eighteen of the respondents also suggested enlarging the suitable recommendation to include additional lands north of the Rio Salado.

The primary reasons for opposition to wilderness designation centered around the WSA's potential for mineral discovery and development. It was also noted that although the Sierra Ladrones have a high favorability for economic mineral deposits, because a quantifiable value cannot be placed on such deposits and their development, it would appear that they are not given adequate weight in the resource allocation process. It was further noted that the inability to ascribe a specific value to a potential energy or mineral source should not cause it to be ignored in land planning.

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commenters supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition. Alternative W included the Sierra Ladrones WSA and recommended the entire WSA plus additional adjacent acreage. Twenty comments were directed to the Sierra Ladrones WSA with 17 favoring and 3 opposed to wilderness designation.

During the public comment period on the *New Mexico Statewide Study: Revised Draft Environmental Impact Statement* (1986), 185 commenters supported the 1.88 million-acre New Mexico BLM Wilderness Coalition proposal and 62 commenters supported the Earth First! proposal. Both of these Statewide proposals supported wilderness designation for this WSA. Specific comments were directed to the Sierra Ladrones WSA by 32 commenters, with all supporting wilderness designation. Some of the reasons cited included: the Nation needs more wilderness areas; designation will protect unique ecosystems; will protect cultural values; the area should be designated but boundaries enlarged; high scenic and recreational values; and the area would be protected for desert bighorn sheep.

Appendix 1: Estimated Costs of Acquisition of Non-Federal Holdings Within the Ladrones Mountains WSA[1]

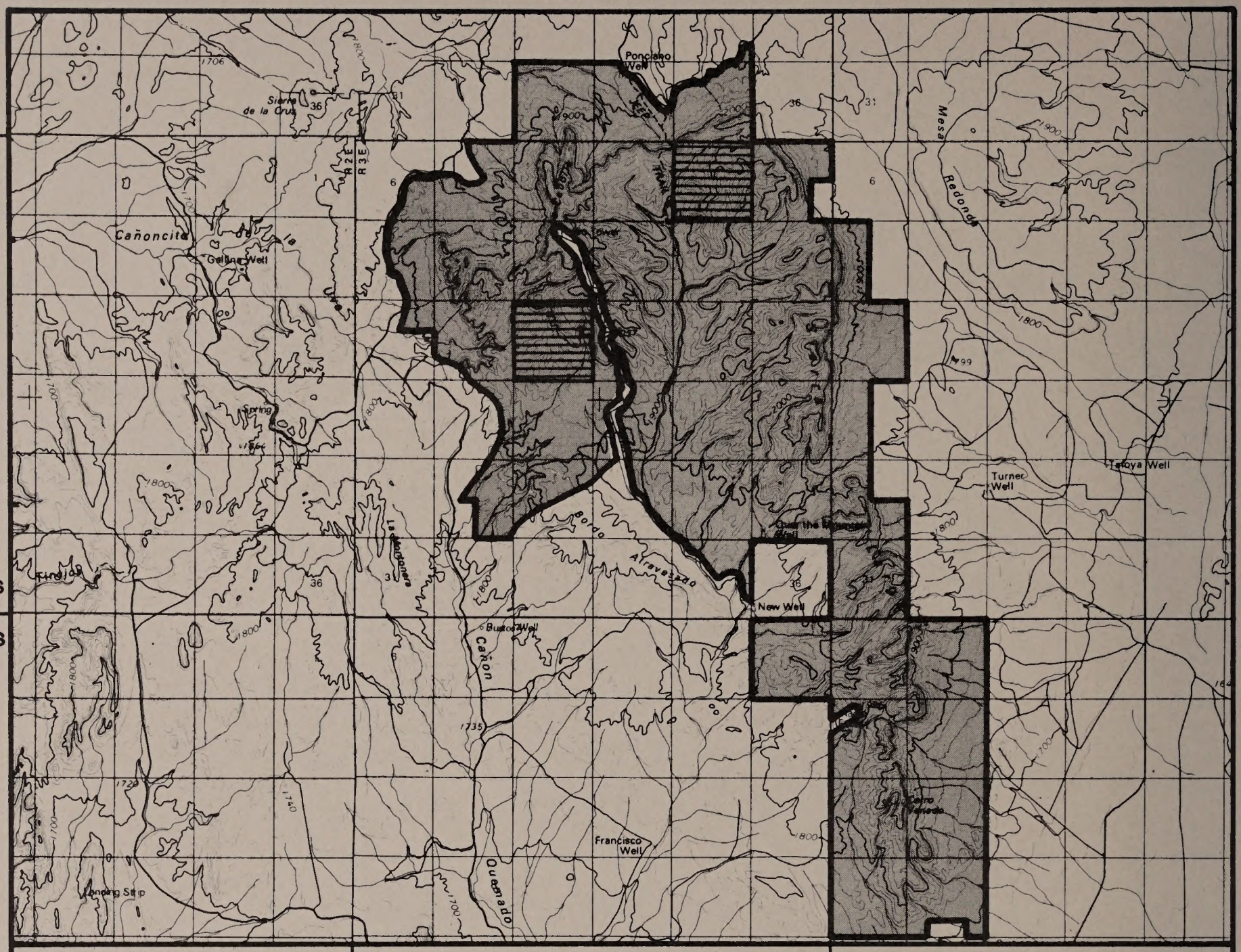
Legal Description (Prior to any Subdivision)	Total Acres	Number of Owners	Type of Ownership by Estate (BLM/ State/ Private) Surface Estate	Subsurface Estate	Proposed for Acquisition (Yes/No)	Preferred Method of Acquisition (Purchase/ Exchange/ Donation)	Estimated Costs of Acquisition[2] Land Costs	Processing Costs
Parcel #1, Sec. 36, T. 2N, R. 3W	560	1	BLM	State	Yes	Exchange	NA	$5,600
Parcel #2, Sec. 36, T. 2N, R. 3W	80	1	State	State	Yes	Exchange	NA	$1,000
Parcel #3, Sec. 32, T. 3N, R. 2W	640	1	State	State	Yes	Exchange	NA	$6,400
Parcel #4, Sec. 14, T. 3N, R. 3W	160	1	Private	Private	Yes	Undetermined	$16,000	$5,000
Parcel #5, Sec. 36, T. 3N, R. 3W	600	1	State	State	Yes	Exchange	NA	$6,000
Parcel #6, Sec. 36, T. 3N, R. 3W	40	1	Private	Private	Yes	Undetermined	$ 4,000	$3,000

[1] The estimated costs listed in this appendix in no way represent a formal appraised value of the land or mineral estate, but are rough estimates based on sales or exchanges of lands or mineral estates with similar characteristics to those included in the WSA. The estimates are for purposes of establishing a range of potential costs to the government of acquiring non-Federal holdings and in no way represent an offer to purchase or exchange at the cost estimate included in this appendix.

[2] Where exchange is the proposed acquisition method, only administrative costs of processing the exchange are shown. Processing costs are all miscellaneous expenses other than land costs. These would include work month costs, appraisals, title work, escrow costs, etc. Where direct purchase is proposed, an estimate of both the land costs and the processing costs is provided.

STALLION
WILDERNESS STUDY AREA

MAP 1



RECOMMENDED FOR WILDERNESS (None)

RECOMMENDED FOR NONWILDERNESS

LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS (None)

SPLIT ESTATE (None)

STATE

PRIVATE (None)

N

0 1 2

MILES

Stallion Proposal

NM-020-040

April 1990

STALLION
WILDERNESS STUDY AREA

THE STUDY AREA – 24,238 Acres

The Stallion Wilderness Study Area (WSA), NM-020-040, is located in central Socorro County, 14 miles east of Socorro, New Mexico. The WSA includes 24,238 acres of Bureau of Land Management (BLM) land and 1,280 acres of State inholdings. (See Table 1 for land status and acreage summary of the study area.) The WSA is bounded on the west and east by County roads and on the north and south by maintained dirt roads and BLM-administered public lands.

The Stallion WSA is characterized by a semi-arid mountainous environment which varies from the near vertical rock escarpments and eroded plains of the Sierra Larga to rolling pinyon-juniper and grass covered hills. Elevations in the WSA range from 5,500 feet to 7,100 feet.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. Two alternatives for the Stallion WSA were analyzed in the EIS: an all wilderness alternative and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

0	Acres recommended wilderness
24,238	Acres recommended wilderness

The Stallion WSA is not recommended for wilderness designation (see Map 1). While the area contains the values necessary for study, they are not considered to be of a quality to merit inclusion in the National Wilderness Preservation System (NWPS). Based on the numerous vehicle routes in the WSA and the overlapping White Sands Missile Range (WSMR) Safety Extension Area, the BLM believes the area would be difficult and costly to manage as wilderness. Wilderness designation would also conflict with possible future mineral development.

The All Wilderness Alternative is the environmentally preferable alternative as its implementation would result in the least change to the natural environment over the long-term. The recommendation, while not the environmentally preferred, will be implemented in a manner which would utilize all practical means to avoid or minimize environmental impacts. There are no known or projected surface disturbing activities proposed for the WSA, however, mineral

exploration and development may occur in the future. Any mining activity would be regulated to prevent unnecessary or undue degradation of the natural environment.

The Stallion WSA marginally meets the naturalness criterion. Numerous rangeland and watershed developments and 20 miles of vehicle ways are located within the WSA. These imprints are concentrated in locations that are very noticeable from areas in the WSA most likely to receive visitor use. These developments, located on the west side of the WSA, the northern escarpment, the central basin, and the southern ridgeline, degrade the natural appearance of these key topographic features.

Although opportunities exist for primitive and unconfined recreation, there are much better opportunities available in nearby areas. In a clockwise direction, the Manzano, San Pascual, and Withington Wilderness Areas are all within a 50-mile radius of the Stallion WSA. These areas total 86,920 acres. These wilderness areas, located within a 1-hour drive from Socorro, provide much greater recreational opportunities in a more natural, primitive setting.

The area could be managed as wilderness, however, manageability would be costly and require a high level of patrolling due to the frequent motor vehicle use of the 20 miles of vehicle ways and 4 miles of

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	24,238
Split-Estate (BLM Surface Only)	0
Inholdings	1,280
Total	25,518
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	0
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings	0
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	24,238
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	24,238
Inholdings	1,280

cherry-stem roads which penetrate the WSA. These ways have historically been heavily used by deer hunters and would be virtually impossible to physically close due to their location in open terrain. Administrative costs to sign and patrol the area would be significant.

The presence of the WSA within the WSMR Safety Extension Area would require special management consideration to accommodate the military's needs while preserving wilderness values and ensuring human safety. A permit system and appropriate signing would be required if the area were designated wilderness. This would facilitate WSMR's periodic evacuations of the area but would increase wilderness management costs. Access to recover possible missile debris would be granted after determining the method which would least impact wilderness values. While this is not expected to result in significant problems because of the low probability of a missile impacting in the area, personnel from the WSMR have stated that future test forecasts indicate increased utilization of the area.

Copper deposits in Permian red beds are known to occur in a belt extending from Scholle to Carthage passing through the WSA. Some of the deposits were mined in the past but have been uneconomic in recent years. The red beds crop out extensively in the WSA. For this reason, the WSA is considered to have moderate potential for the occurrence of copper mineralization. Indications of mineral exploration occur in the western and southern portions of the WSA as evidenced by the numerous prospect pits.

Stream sediment samples from the National Uranium Resource Evaluation (NURE) study showed anomalously high concentrations of rare-earth elements in two samples from the northeastern part of the WSA and in several samples just outside the WSA boundaries. The resource potential for rare-earth elements, specifically, lanthanum, cerium, samarium, and ytterbium, is considered in the NURE study as high in the northeast part of the study area.

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The WSA is generally natural in appearance, however, a number of intrusions detract from the quality of the area's naturalness. Intrusions include 3 wildlife waters, 5 dirt tanks, 22 miles of barbed wire fence, 1 windmill, 2 miles of pipeline with 2 drinking troughs, 1/5 mile of pipeline with 2 storage tanks, 30 prospect pits, 20 miles of ways and 4 miles of cherry-stem roads. Every section within the WSA either borders or contains a noticeable intrusion of some kind. In addition to these intrusions, White Sands Missile Range (WSMR) has remnants of an electronic tracking station and an operating microwave reflector structure on the highest points in the north and south portions of the Sierra Larga. Although excluded from the WSA, these intrusions and the roads to them are visible from a number of vantage points within the area. About 7 miles of substantially noticeable ways located in the central portion of the WSA detract significantly from the naturalness of the area. A road (classified as a way during the intensive inventory) bladed up the escarpment in the northern portion of the WSA is substantially noticeable in that area and receives regular and continuous use by ranchers and recreationists.

The naturalness values of the WSA as a whole are marginal due to the amount and location of various intrusions within and adjacent to the WSA. There are, however, area-specific exceptions within the WSA, but these areas are small, generally less than 3,000 acres.

Solitude

The WSA is isolated and rugged, especially the Sierra Larga ridgeline. The area's vegetational screening and geographic setting contribute to its outstanding solitude opportunities. The airspace

over the WSA is utilized by the military for aerial training maneuvers with high performance jet aircraft. The frequent noise associated with these maneuvers is not conducive to a quality solitude experience.

Primitive and Unconfined Recreation

The WSA can provide visitors with outstanding opportunities to experience a pinyon-juniper mountain environment suited to day hiking, deer hunting, horseback riding, and exploration. The WSA is most attractive to these recreational pursuits during the fall and spring months. Historically, the majority of recreational use consists of deer hunting. Access by hunters is predominantly by vehicle with all access routes in the WSA utilized. Although outstanding opportunities exist for primitive and unconfined recreation, there are much better opportunities available in nearby areas.

Special Features

The WSA supports a small herd of wild horses (25-30 animals), which in the opinion of some individuals, enrich the WSA's aesthetic and faunal resources.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The Stallion WSA lies near the northern extreme of the Chihuahuan Desert and the southern edge of the Colorado Plateau Province. Potential natural vegetation (PNV) consists of 3,000 acres of grama/tobosa shrubsteppe in the Chihuahuan Desert and 21,238 acres of pinyon/juniper woodland mosaic in the Colorado Plateau. However, because of the WSA's geographic location between the Chihuahuan Desert and Colorado Plateau Provinces, these areas are not clearly distinctive. Instead, the two tend to integrate into one another to varying degrees. The ecosystem information is summarized in Table 2.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of Las Cruces, Albuquerque, and Santa Fe, New Mexico. Table 3 summarizes the number and acreages of designated areas and other BLM study areas within a 5-hour drive of these population centers.

Balancing the geographic distribution of wilderness areas

The Stallion WSA would contribute slightly to balancing the geographic distribution of areas within the NWPS. In a clockwise direction, the Manzano, San Pascual, and Withington Wilderness Areas are all within a 50-mile radius of the Stallion WSA. These areas total 86,920 acres.

Manageability

The Stallion WSA is manageable as wilderness. Manageability is a judgment made by the BLM after considering such factors as State inholdings, valid existing rights, topography, and the overall land ownership pattern.

Grandfathered livestock operations in the WSA are compatible with wilderness management. Required access for the maintenance of existing rangeland developments, such as windmills and pipelines, could reduce the naturalness and solitude along the western boundary and central portion of the WSA.

The 20 miles of vehicle ways in the WSA create significant off-road vehicle management problems. These ways have historically been heavily used by deer hunters and would be virtually impossible to physically close due to their location in open terrain. Administrative costs to sign and patrol the area would be significant.

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Chihuahuan Desert Province				
Grama/Tobosa Shrubsteppe	2	39,907	16	185,976
Colorado Plateau Province				
Pinyon/Juniper Woodland	10	139,367	87	2,074,604
New Mexico				
Chihuahuan Desert Province				
Grama/Tobosa Shrubsteppe	2	39,907	16	185,976
Colorado Plateau Province				
Pinyon/Juniper Woodland	4	33,084	13	121,329

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	680,955
Las Cruces	14	1,192,386	35	758,396
Santa Fe	21	1,422,038	23	371,969

The Stallion WSA lies within a Safety Extension Area used primarily as a safety impact zone in support of several missile test programs conducted at WSMR. The Safety Extension Area must be evacuated of all human inhabitants during missile firings. The availability of the area is required for an indefinite period of time to support future military programs requiring a test range in excess of that provided by the main WSMR. WSMR requires reasonable access to the Safety Extension Area to recover missile debris. However, no impacts of this nature have occurred within the WSA to date.

Two instrumentation sites are technically corridored out of, but surrounded by the WSA. Future use or expansion of existing instrumentation sites or the installation of new sites may be necessary either adjacent to or within the WSA.

The presence of the WSA within the WSMR Safety Extension Area would require special management consideration to accommodate the military's needs while preserving wilderness values and ensuring human safety. A permit system and appropriate signing would be desirable features for wilderness management. This would allow a greater degree of control of public access than presently exists and would facilitate WSMR's periodic evacuations of the area.

Access to recover possible missile debris would be granted after determining the method which would least impact wilderness values. This is not expected to result in significant problems because of the low probability of a missile impacting in the area. However, personnel from the WSMR have also stated that future test forecasts indicate increased utilization of the area. It is not possible at this time to evaluate the possible manageability problems as a result of increased military use. Because the WSA is located well within the Safety Extension Area, the possibility exists for increased manageability problems resulting from the need to expand existing instrumentation sites and an increase in the probability of missile impacts.

Inholdings within the WSA include 1,280 acres of State land. Acquisition of these inholdings, through voluntary exchange, would enhance manageability.

Energy and Mineral Resource Values

Based upon BLM Geologists' analyses, the WSA has low energy and mineral potential for all resources except copper. Although the entire Stallion WSA has moderate potential for copper, there are no existing mining claims in the area.

Copper deposits in Permian red beds are known to occur in a belt extending from Scholle to Carthage passing through the WSA. Some of the deposits were mined in the past but have been uneconomic in recent years. The red beds crop out extensively in the WSA. For this reason, the WSA is considered to have moderate potential for the occurrence of copper mineralization. Indications of mineral exploration occur in the western and southern portions of the WSA as evidenced by the numerous prospect pits.

Stream sediment samples from the National Uranium Resource Evaluation (NURE) study showed anomalously high concentrations of rare-earth elements in two samples from the northeastern part of the WSA and in several samples just outside the WSA boundaries. The resource potential for rare-earth elements, specifically, lanthanum, cerium, samarium, and ytterbium, is considered in the NURE study as high in the northeast part of the study area.

Impacts on Resources

A comparative analysis of impacts by alternative for the Stallion WSA is shown on Table 4. This information is taken from the Final EIS.

Local Social and Economic Considerations

No local social or economic considerations were identified in the New Mexico Statewide Wilderness Study; therefore, no further discussion of this topic will occur in this document.

Summary of WSA-Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Stallion area during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area*

Table 4: Comparative Summary of Impacts by Alternatiave

Issue Topics	All Wilderness (24,238 Acres Suitable)	No Wilderness (Proposed Action; 0 Acres Suitable)
Impacts on Wilderness Values	Opportunities for solitude, hiking, camping, and hunting would be maintained. There would be a 10 percent improvement in the quality of naturalness through closure of 20 miles of vehicle ways.	Based upon past interest in the area, no impacts from exploration would occur in the short-term. In the long-term, mineral exploration and possible development of rare-earth elements in the northeast part of the WSA and 24,000 acres with moderate potential for copper would be precluded.
Impacts on Exploration of Copper Resources	Over the long-term, wilderness values would be diminished by mineral exploration. Up to 60 test and development holes are projected to be drilled resulting in approximately 40-60 acres of surface disturbance. From 5 to 10 miles of new roads would be constructed. These activities would eliminate the outstanding opportunities for solitude and reduce naturalness.	No impacts.

Decisions (November 1980). Public involvement during these comment periods generally supported wilderness designation of the Stallion area. Reasons given have concentrated on the WSA's remoteness coupled with its naturalness and solitude values.

Opposition to designation has been intense from several grazing permittees who feel they would be affected by wilderness status. Resource conflicts with grazing use, lack of wilderness characteristics, and conflicts with the WSMR were most often cited as reasons against wilderness designation.

WSMR personnel expressed concern that designation of the Stallion area as wilderness could potentially conflict with military operations.

Wilderness Study Comments

During the public comment period on the *Draft Environmental Assessment Socorro District Wilderness* (1983), 18 letters were received. Ten respondents supported wilderness designation for the Stallion WSA. Reasons for this support included the wilderness values of the area as well as the topographic relief which results in scenic vistas and wildlife values. A number of respondents ques-

tioned the BLM's assessment of management difficulties resulting from the need to periodically evacuate the area for safety reasons.

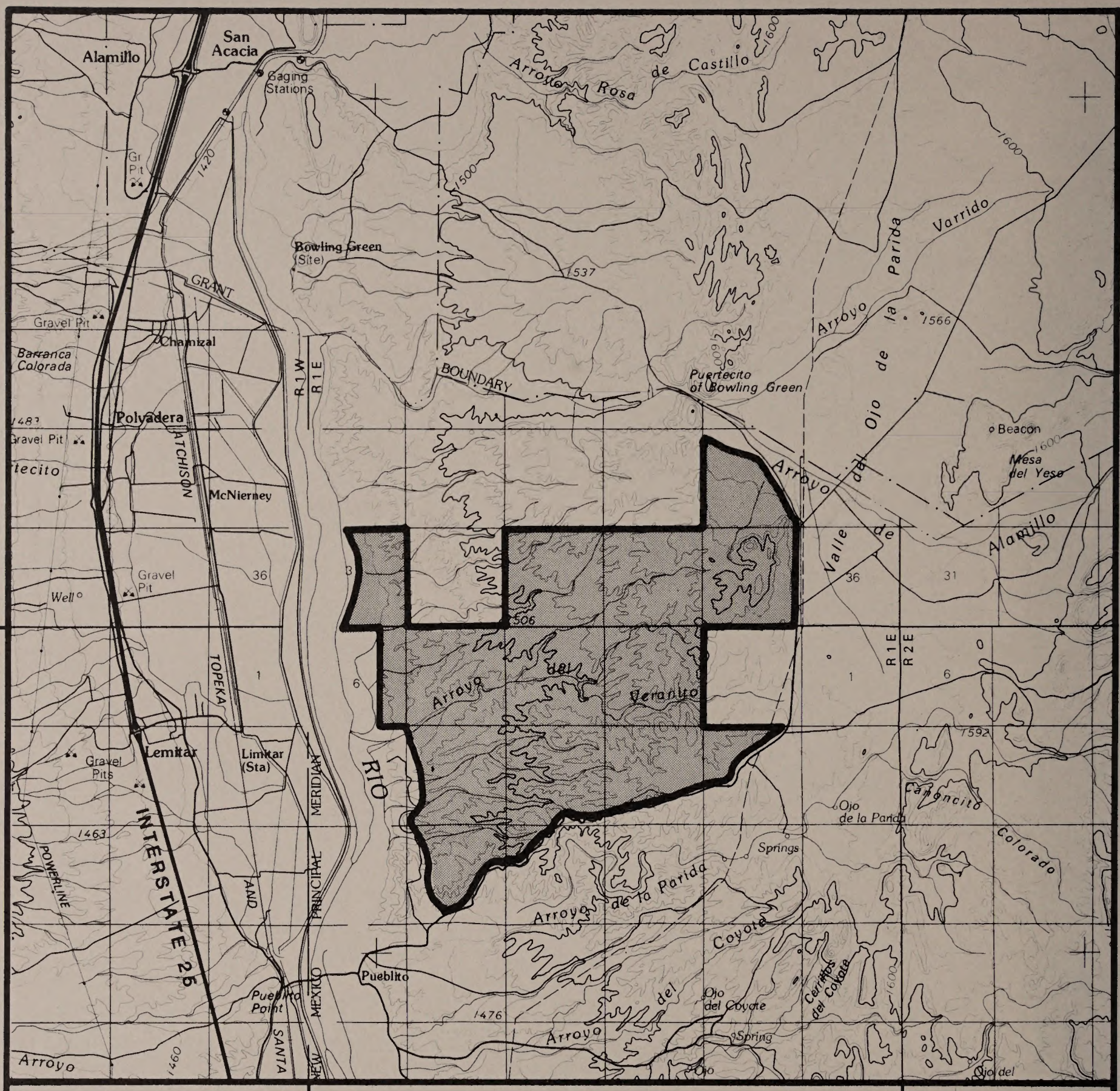
Eight respondents were opposed to wilderness designation of the Stallion WSA. Mineral values including the geologic favorability for oil, gas, limestone, and copper, were most often cited as reasons. It was also noted that the biological features of the WSA are common to the region.

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commenters supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition. Alternative W included the Stallion WSA and recommended wilderness designation for the entire WSA plus several thousand adjacent acres. Specific comments were directed to the Stallion WSA by 109 commenters, 108 of whom supported wilderness designation and 1 opposed.

During the public comment period on the *New Mexico Statewide Study: Revised Draft Environmental Impact Statement* (1986), 185 commenters supported the 1.88 million-acre New Mexico BLM Wilderness Coalition proposal and 62 commenters supported the Earth First! proposal. Both of these Statewide proposals supported wilderness designation for this WSA. Specific comments were directed to this WSA by 34 commenters. All but one of the commenters supported wilderness. Reasons given in support of wilderness included: nondesignation would foreclose future consideration as wilderness; the area meets the wilderness criteria; the BLM overstated the value of other resources; the area has high scenic and recreational values; and the area designated for wilderness should be expanded to include lands outside the WSA boundaries. The one comment opposing wilderness designation was made because the commenter felt that wilderness designation would adversely impact the livestock industry.

VERANITO
WILDERNESS STUDY AREA

MAP I



RECOMMENDED FOR WILDERNESS (None)

RECOMMENDED FOR NONWILDERNESS

LAND OUTSIDE WSA RECOMMENDED FOR WILDERNESS (None)

SPLIT ESTATE (None)

STATE (None)

PRIVATE (None)

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0 1 2

MILES

Veranito Proposal

NM-020-035

April 1990

VERANITO
WILDERNESS STUDY AREA

THE STUDY AREA — 7,206 Acres

The Veranito Wilderness Study Area (WSA), NM-020-035, is located in central Socorro County, 4 miles north-northeast of Socorro, New Mexico. The WSA includes 7,206 acres of Bureau of Land Management (BLM) land. (See Table 1 for land status and acreage summary of the study area.) The WSA is bounded by a powerline and private land on the south and west, by a County road on the east, and by State land on the north.

The WSA is dominated by mesa benchlands which have been cut by numerous arroyos. The drainages are not large, with arroyo depths ranging from 20 to 200 feet. The arroyos generally run northeast to southwest and terminate in the Rio Grande floodplain. A series of low-lying hills are on the east side of the WSA, with the Rio Grande floodplain on the northwest side. Elevations range from 4,600 feet to 5,400 feet.

The WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA) and was included in the *New Mexico Statewide Wilderness Study: Environmental Impact Statement* (EIS). The Statewide Final EIS was filed with the Environmental Protection Agency in February 1988. Two alternatives for the Veranito WSA were analyzed in the EIS: an all wilderness alternative and a no wilderness alternative.

RECOMMENDATION AND RATIONALE

0	Acres recommended wilderness
7,206	Acres recommended nonwilderness

The Veranito WSA is not recommended for wilderness designation (see Map 1). While the area contains the wilderness values necessary for study, they are not considered to be of a quality to merit inclusion in the National Wilderness Preservation System (NWPS).

The All Wilderness Alternative is the environmentally preferable alternative as its implementation would result in the least change to the natural environment over the long-term. The recommendation, while not the environmentally preferred, will be implemented in a manner which would utilize all practical means to avoid or minimize environmental impacts. While resource development activities within the WSA are not projected, there is a possibility for geothermal exploration. If exploration were to occur, it is possible that up to 5 miles of new roads would be constructed and approximately 50 test holes would be drilled. Any exploration activity would, however, be regulated to prevent unnecessary and undue degradation of the area's resources.

The Veranito WSA marginally meets the naturalness criterion. Numerous rangeland developments and 6 miles of vehicle ways are located within the WSA. These imprints are concentrated in locations that are very noticeable from areas in the WSA most likely to receive visitor use. These access routes and developments are located within the central, southern, and western portions of the WSA and are quite noticeable due to the lack of either vegetation or topographic screening.

The gently rolling creosote desert, which characterizes 75 percent of the WSA, offers little topographic or vegetation screening. Although there are outstanding opportunities for solitude in the WSA, these characteristics exist primarily as a result of the remoteness of the region and the lack of any special features to attract visitors to the area.

During the wilderness inventory, it was determined that the WSA lacked outstanding recreational opportunities.

There are no known special habitats or wildlife species in the WSA that would depend upon wilderness designation. Other BLM WSAs recommended for wilderness and existing U.S. Forest Service and U.S. Fish and Wildlife Service wilderness areas are common in the region. These nearby areas possess much greater wilderness values than the Veranito WSA.

Table 1: Land Status and Acreage Summary

Within Wilderness Study Area	Acres
BLM (Surface and Subsurface)	7,206
Split-Estate (BLM Surface Only)	0
Inholdings	0
Total	7,206
Within the Recommended Wilderness Boundary	
BLM (Within WSA)	0
BLM (Outside WSA)	0
Split-Estate (Within WSA)	0
Total BLM Land Recommended for Wilderness	0
Inholdings	0
Within the Area Not Recommended for Wilderness	
BLM (Surface and Subsurface)	7,206
Split-estate (BLM Surface Only)	0
Total BLM Land Not Recommended for Wilderness	7,206
Inholdings	0

CRITERIA CONSIDERED IN DEVELOPING THE WILDERNESS RECOMMENDATIONS

Wilderness Characteristics

Naturalness

The WSA appears to have been affected primarily by the forces of nature; the imprint of man is substantially unnoticeable. Naturalness is locally impacted in the WSA by 5 miles of two track vehicle ways, approximately 17 miles of barbed wire fencing, 3 miles of buried plastic pipeline, and one dirt tank. The quality of the WSA's natural appearance is not high. Its relatively small size combined with rolling topographic relief and sparse vegetation screening, accentuates the human intrusions present within the WSA.

Solitude

The gently rolling creosote desert, which characterizes 75 percent of the WSA, offers little topographic or vegetation screening. Although there are outstanding opportunities for solitude in the WSA, these characteristics exist primarily as a result of the remoteness of the region and the lack of any special features to attract visitors to the area.

Primitive and Unconfined Recreation

The intensive inventory determined that the area lacked outstanding opportunities for recreation and this determination was confirmed during the wilderness study. The opportunities for recreation are limited and not of a primitive nature due to the numerous rangeland developments which restrict or degrade recreational activities, such as horseback riding and backpacking. Recreational opportunities are further reduced by the limited recreational resources within the WSA. The opportunities for primitive recreation are of no greater quality or diversity than recreational opportunities in any undeveloped hilly area along the Rio Grande in the region.

Special Features

The WSA's special features include its cultural resources and its cottonwood bosque. A Piro Indian pueblo ruin is located on the area's boundary and a petroglyph site is present within the WSA. The potential for presently undocumented cultural resource sites is high for the area. The WSA also contains 415 acres of cottonwood bosque which provides some wildlife habitat. This bosque is currently being invaded by salt cedar, an exotic species of tree introduced from Eurasia.

Diversity in the National Wilderness Preservation System

Expanding the diversity of natural systems and features as represented by ecosystems

The Veranito WSA lies within the Chihuahuan Desert Province with a potential natural vegetation (PNV) 7,206 acres of grama/tobosa shrubsteppe. Wilderness designation would add this ecosystem which is currently represented in two areas within the NWPS. Table 2 summarizes this information.

Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers

The WSA is within 5-hours driving time of Albuquerque, Las Cruces, and Santa Fe, New Mexico and El Paso, Texas. Table 3 summarizes the number and acreage of designated areas and other BLM study areas with a 5-hour drive of the population centers.

Balancing the geographic distribution of wilderness areas

Designation of Veranito as wilderness would not contribute to balancing the geographic distribution of areas within the National Wilderness Preservation System. The Apache Kid, Withington, Manzano, and San Pasqual Wilderness Areas are all within a 50-mile radius from Veranito. These areas total 141,570 acres.

Table 2: Ecosystem Representation

Bailey-Kuchler Classification	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
Province/Potential Natural Vegetation				
Nationwide				
Chihuahuan Desert Province				
Grama/Tobosa Shrubsteppe	2	39,907	16	181,770
New Mexico				
Chihuahuan Desert Province				
Grama/Tobosa Shrubsteppe	2	39,907	16	181,770

Table 3: Wilderness Opportunities for Residents of Major Population Centers

Population Centers	NWPS Areas	NWPS Acres	Other BLM Studies Areas	Other BLM Studies Acres
New Mexico				
Albuquerque	26	1,762,638	31	697,987
Las Cruces	14	1,192,386	35	775,428
Santa Fe	21	1,422,038	23	389,001
Texas				
El Paso	12	1,126,112	25	617,847

Manageability

The Veranito WSA is manageable, however, only to provide for marginal wilderness values. Factors which affect the capability of the Veranito WSA to be managed as wilderness include the historic use of off-road vehicles (ORV) and the marginal wilderness values of the area.

Increased ORV use in the WSA is expected to occur. The Veranito WSA is close to the community of Socorro and readily accessible to hunters and 4-wheel drive enthusiasts and has historically been used for motorized recreational purposes, especially by motorcycles and 3-wheeled all-terrain cycles. Because of the lack of topographic features, closure of existing trails in the WSA would be very difficult to

enforce without constant patrol. As the WSA does not possess high quality primitive recreational opportunities, management of the area as wilderness would not provide for the activities but simply provide opportunities for solitude.

Energy and Mineral Resource Values

The Veranito WSA has been rated by BLM Geologists as having moderate potential for geothermal (7,200 acres) and uranium (4,300 acres) resources. The WSA is considered to have low potential for the development of other energy and nonenergy minerals.

There are no mining claims or mineral leases within the WSA.

Impacts on Resources

A comparative summary of the impacts by alternative for the Veranito WSA is shown on Table 4. This information is taken from the Final EIS.

Local Social and Economic Considerations

No local social or economic considerations were identified in the New Mexico Statewide Wilderness Study; therefore, these issues are not discussed in this document.

Table 4: Comparative Summary of Impacts by Alternative

Issue Topics	All Wilderness (7,206 Acres Suitable)	No Wilderness (Proposed Action; 0 Acres Suitable)
Impacts on Wilderness Values	Wilderness protection would maintain the area's natural values and outstanding opportunities for solitude. In addition, 415 acres of riparian habitat would be maintained in a natural condition.	In the long-term, anticipated mineral exploration of up to 55 drill holes and 2 producing geothermal wells and up to 10 mineral material sales per year would totally degrade the area's naturalness and opportunities for solitude. Up to 100 acres of surface disturbance would result including up to 10 miles of vehicle routes. Due to the area's marginal naturalness, surface disturbing activities would degrade opportunities for solitude and eliminate the naturalness of the entire WSA.
Impacts on Geothermal and Uranium Resources and Exploration	Based upon past exploration in the area and the lack of mining claims, there would be no impacts on exploration in the short-term. In the long-term, a total of 2 producing geothermal wells and up to 10 mineral material sales per year would be foregone.	No impacts.

Summary of WSA-Specific Public Comments

Wilderness Inventory Comments

Public comments were received on the Veranito WSA during the public review periods on the *New Mexico Wilderness Study Area Proposals* (March 1980) and the *New Mexico Wilderness Study Area Decisions* (November 1980). During the public comment period, comments were received supporting and opposing WSA status of the area. However, most of the public involvement in the wilderness inventory and study process has generally indicated support for designation of the Veranito WSA as wilderness. Reasons cited have revolved around the WSA's close proximity to the community of Socorro and the Rio Grande Valley. Opposition to wilderness designation came from area permittees. Generally, permittees feel wilderness designation would complicate ranch operations and narrow rangeland management opportunities.

WSMR personnel expressed concern that designation of the Veranito WSA as wilderness could potentially conflict with military operations within the WSMR Safety Extension Area.

Wilderness Study Comments

During the public comment period on the *Draft Environmental Assessment Socorro District Wilderness* (1983), 17 letters were received on the Veranito WSA. Ten of the letters were opposed to wilderness designation while seven favored designation for the area. Those who favored designation of the WSA disagreed with the BLM's assessment of manageability problems resulting from the WSMR Safety Extension Area. It was also noted that the WSA's proximity to the community of Socorro enhanced its value as wilderness. Opposition to wilderness designation centered around the area's lack of wilderness values and geologic favorability for geothermal resources, uranium, zeolites, and rare earths.

During the public comment period on the *New Mexico Statewide Wilderness Study: Draft Environmental Impact Statement* (1985), BLM received 465 comments in the form of letters and testimony at public hearings. A total of 340 commenters supported Alternative W, a 1.3 million-acre wilderness proposal advocated by the New Mexico BLM Wilderness Coalition. Alternative W included the Veranito WSA and recommended wilderness designation for the entire WSA plus additional adjacent acreage. Specific comments were directed to the Veranito WSA by 10 commenters all of which supported wilderness designation.

During the public comment period on the *New Mexico Statewide Study: Revised Draft Environmental Impact Statement* (1986), 12 favored wilderness designation for this WSA and 1 opposed wilderness. Also, 185 commenters supported the 1.88 million-acre New Mexico BLM Wilderness Coalition proposal and 62 commenters supported the Earth First! proposal. Both of these Statewide proposals supported wilderness designation for this WSA.